G2 AFV

60¢

United Kingdom
30p.

A MAGAZINE FOR ARMOR ENTHUSIASTS

Volume 3 Number 2

Jerry's Hobbies

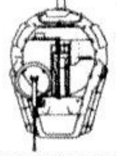
Armor Publications in Stock

The Churchill Tank	*$6.00*
Tank by Macksey-Bachelor	*$7.00*
Almark's Sherman Tank	*$2.00*
Almark's American Armd. Cars	*$2.00*
Modern British Tanks & Fighting Equipment –	*$3.25*
Profile's Bound Vol. I. – British AFVs 1919-1940	*$11.95*
Ian Allan's Fighting Vehicles of the Red Army	*$4.50*

Calif. Residents add 5% Sales tax - Postals add .25/book

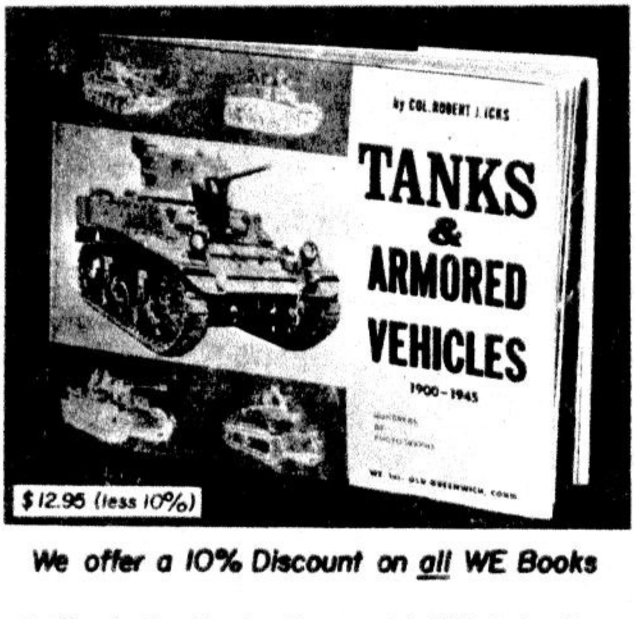
For the needs of an Armor Enthusiast
By Mail !

Jerry's Hobbies
733 South Main Street
Santa Ana, Calif. 92701



Sylmar Books

P. O. Box 447 San Fernando, CA. 91340



We offer a 10% Discount on all WE Books

California Residents please add 5% Sales Tax on Book orders

Books for the Armor Buff

HOURS:
TUE - FRI: 1^{00} PM - 8^{30} PM
SATURDAY: 10^{00} AM - 6^{00} PM

MAIL ORDERS
SHIPPED IN 24 HOURS

AMERICAN EAGLES
5912. 15TH N.W.
SEATTLE. WN. 98107.

PHONE: SUNSET - 2-8448 AREA CODE 206

LARGEST SELECTIONS IN THE N.W. OF
* AIRCRAFT * * ARMOUR *
FIGURES * * SHIPS *

IMPORTED & DOMESTIC MODELS
DECALS
PAINTS * TOOLS * ACCESORIES *
– BOOKS & PUBLICATIONS –

MODELLERS ADVISORY SERVICE FOR ALL!

MODELS BY:	TAMIYA - NITTO - NICHIMO - HASEGAWA - AOSHIMA - FUJI - FUJIMI - BANDAI - IMAI - OTAKI - NIPPON - MARUSAN - LS - AIRFIX - FROG - ALMARK - REVELL G.B. HELLER - ARTIPLAST - ITALAEREI - ROCO E.T.C.
DECALS BY:	A.B.T. - ALMARK - LETRASET - MODELTOYS - ITALAEREI - ARTIPLAST - POLLY"S" - A.I.R. - MICRO SCALE - STOPPEL - EXACT - ACAL - NORDAN HIS - AIR - DEC, E.T.C.
PAINTS BY:	PACTRA - TESTORS - HELLER HUMBROL CAMOFLAGE COLORS
FIGURES & ACCES. BY:	H & R. - CRAMER - ROSE - CAMEO - CAVALIER - HISTOREX - SUPERIOR LASSETT - TAMIYA - ALMARK - E.T.C. BELLONA BATTLEFLDS. ARMTEC.

FOR YOUR SERVICE:

MICHAEL S. EDWARDS:
HUNGARIAN WAR COLLEGE.
ARMOUR & AIRCRAFT HISTORIAN.

ROGER TORGESON:
SHIPS & ANCIENT WARGAMING SPECIALIST

CHARLES POLAND
NAVAL HISTORIAN & SPECIALIST

DENNIS BURR
MODERN WARFARE & ARMOUR SPECIALIST

WHEN IN SEATTLE – VISIT OUR STORE!!
A MODEL SHOP RUN BY MODELERS FOR MODELERS
MEMBERS IN I.P.M.S.

Vol. 3 No. 2
October 1971

AFV-G2
Table of Contents

PAGE	ARTICLE TITLE	AUTHOR
4	7.5cm Pak 40/3 auf Panzer 38(t), Marder III., Sd. Kfz. 138, Ausführung H	Jim Steuard
5	Panzerjäger "Marder III." with 7.5cm Pak 40/3, 1:32 Scale Drawings	S. R. Cobb
7	Libya - 1940; The Start of the Desert War	Capt. Lee D. Mac Mahon
9	Product Review: Origins of World War II. by Avalon Hill	Jim Garrison
10	The History and Development of Czechoslovak Armored Fighting Vehicles	Jiri T. Vojta
14	Normandy, D Plus 5	Bruce Mac Rae
15	Armor G-2; Armor of the Arab Nations, Part 2	J. C. Johns
16	The M-24 "Chaffee" Light Tank	Jim Garrison
17	Technical Data Table: M-24 "Chaffee" Light Tank	Jim Garrison
18	M-24 "Chaffee" Light Tank 5-view 1:32 Scale Drawings	S. R. Cobb
20	Blunted Sword: Jordanian Armor on the Northern Front, 1967	Jerry Asher
23	The Baron's Bookshelf: Book Reviews for the Armor Reader	Jim Garrison
24	Color 'n Camouflage: German Sd. Kfz. 250/9 Halftrack in Russia	Jim Steuard
26	When the Wheat Ripened	Wayne Larson
28	The Baron's Corner: Monogram Panzer IV. Cupola Conversions	Norb Meyer
29	Wargame Review: Sand Table Terrain, Part 2	Gary Gygax
30	British Armoured Divisions of 1939	William E. Platz
31	Organization Chart, British Armoured Division, 1939	Jim Steuard
33	Product Review: Airfix 1:76th Scale Panzer IV. kit	Lonnie Gill
33	Product Review: Instant Rivet	Jim Garrison
34	Product Review: Bandai 1:30th Scale 'Grasshopper' kit	William Rupprecht

COVER: A well-camouflaged "Marder III" self-propelled anti-tank gun waits, hidden, in ambush on the Russian front. This German vehicle is featured in text and drawings in this issue, starting on Page 4. Our charcoal rendering is by Bruce Weigle.

EDITORIAL STAFF

Editor — James G. Steuard
Associate Editor, Wargaming — William E. Platz
Associate Editor, Modeling — Norbert F. Meyer
Associate Editor, History — Lonnie L. Gill
Art Director — Steven R. Cobb
Director of Photography — Carl E. Weaver
Circulation Director — John G. Yonos
Advertising Director — James S. Garrison

© Baron Publishing Company, 1971

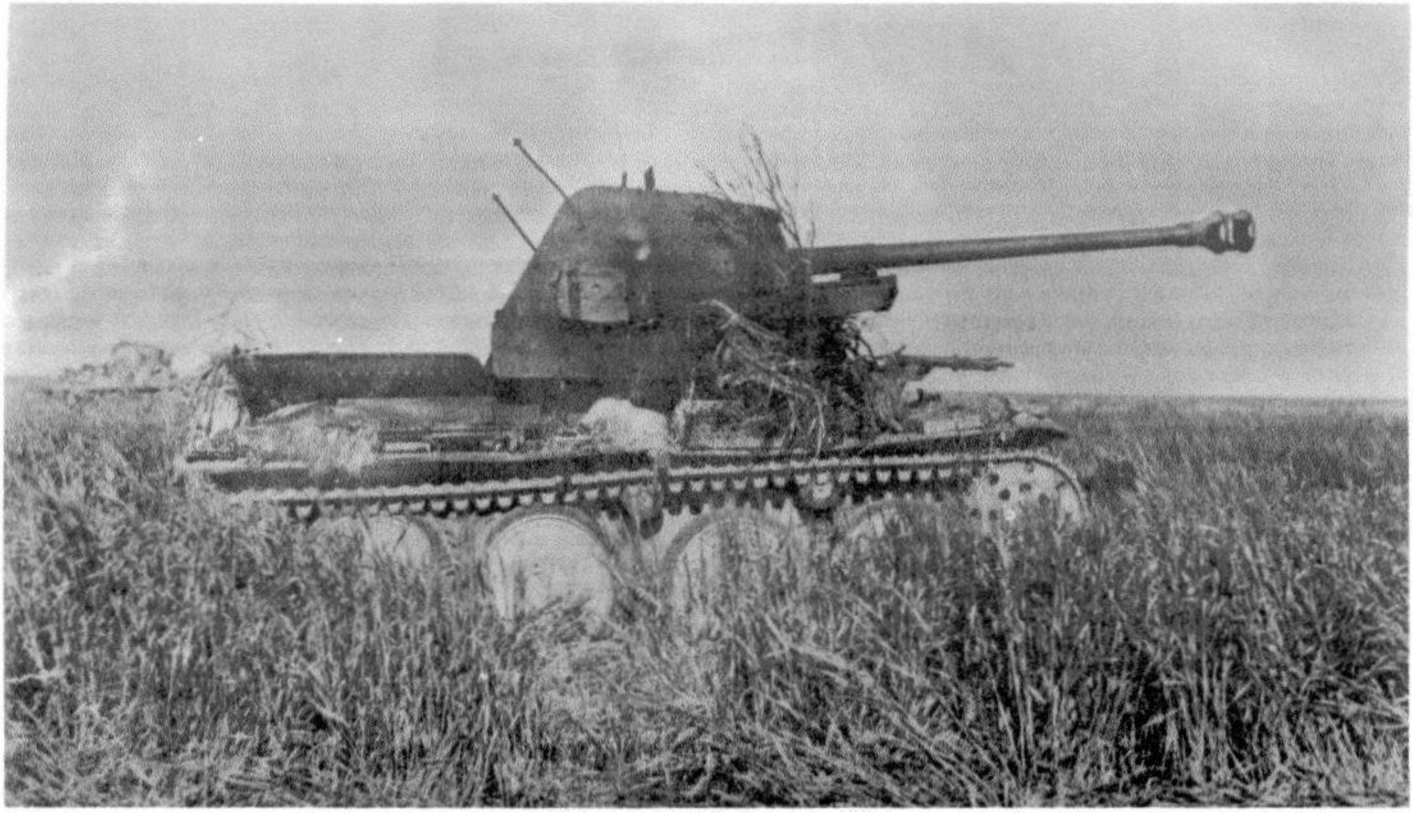
The AFV-G2 is a magazine, published monthly, for Armor Enthusiasts, with the purpose of gathering and disseminating information about Armored Fighting Vehicles and their employment; to provide an opportunity for persons seriously interested in the History of Armored Fighting Vehicles, in the modeling of these AFV's and associated equipment, and in the playing of military Wargames utilizing miniature AFV's, to share ideas and items of mutual interest, and to promote an interest and awareness in the subject of AFV's.

The AFV-G2 is available, with an individual issue price of $.60, from local Hobby Shops, Magazine and Book Dealers. Subscriptions are available for the sum of $6.00 yearly. Checks should be made payable to the "AFV-G2" or to Baron Publishing Company, and forwarded to the Circulation Director: Mr. John Yonos, Post Office Box 293, La Puente, California 91747. In the United Kingdom contact: Greening, Knoll Cottage, Knoll Road, Dorking, Surrey.

AFV-G2 is printed in the United States, mailed in Los Angeles, California and sent as "third class" mail to those subscribers living in the United States. To those subscribers living outside of the territorial boundaries of the United States, AFV-G2 is sent as "printed matter".

Under the postal regulations of the United States and those of most other countries, any mail that falls into "third class" or "printed matter" rates will NOT BE FORWARDED; even if the recipiant leaves a forwarding address or makes other arrangements, the magazine will not be delivered. AFV-G2 guarantees return postage so that the magazines will not be destroyed, but we cannot guarantee delivery without a valid address. We request that all subscribers promptly notify Baron Publishing Company of any changes of address, so that they can protect the delivery of their magazines.

Information for Authors: All work on the AFV-G2 is voluntary. The Editor invites all contributions to be considered for publication. We welcome Articles, Data, Photographs and Drawings. Manuscripts should be typewritten, double-spaced if possible. All submitted material becomes the property of AFV-G2 unless other arrangements are made at time of submission. Extreme care will be taken with all material to be returned upon publication; however, the publisher cannot accept any responsibility for loss or damage. Authors who are subject to Security Regulations of the Department of Defense are personally responsible for clearance of any original material before submission to this publication. Address all submitted material to: AFV-G2, Post Office Box 293, La Puente, California 91747, U.S.A.

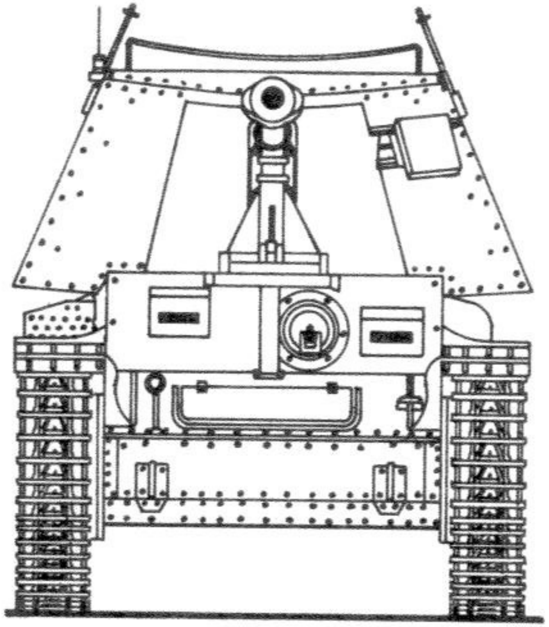


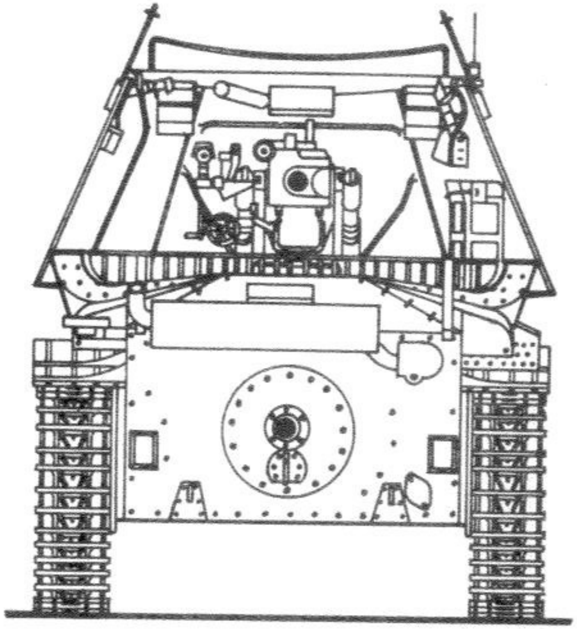
7.5cm Pak 40/3 auf Panzer 38(t), Sd.Kfz. 138, Marder III.

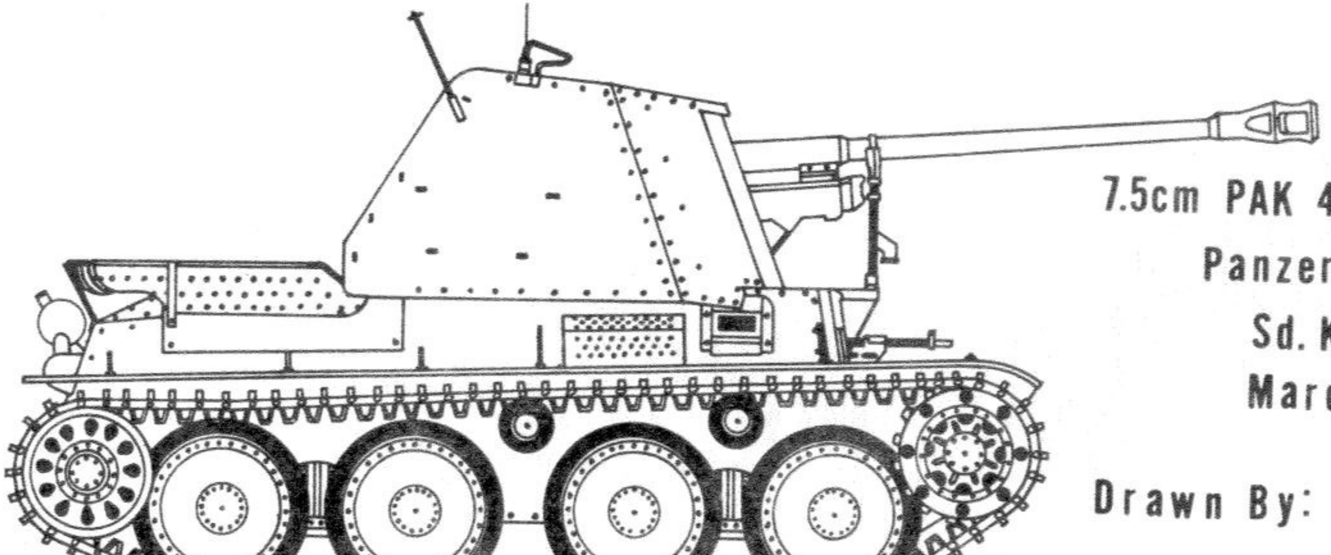
by Jim Steuard

By early 1942, completely mobile anti-tank weapons of the German Wehrmacht could be divided into two separate categories, both of which were in urgent demand to combat the situation on the Eastern front. One of these categories consisted of the entirely armored assault vehicle, typified by the Sturmgeschütz III.; these vehicles were in the process of being upgunned with the more powerful, longer 7.5cm L/46 anti-tank gun, thereby increasing their effectiveness as anti-tank vehicles. They offered overhead cover from enemy shell bursts, and featured heavy frontal armor (like that of tanks) and a low silhouette which was useful for concealment purposes. Unfortunately for the Wehrmacht, these "assault guns" were in extreme short supply, and the requirements for them far outclassed production at this time; production of tanks based on the Panzer III. chassis had a higher priority. The second type of self-propelled anti-tank weapons system consisted of relatively simple conversions of obsolete or surplus tanks, so that they could carry more powerful anti-tank guns. While these conversions were numerous in type, their configuration was similar in that they did not offer full armor protection, being generally open on the top and to the rear. The armor protection offered by the superstructure was also insufficient in that the crew was only safe from enemy small arms fire. Also, in general, these vehicles had a high silhouette (compared to other armored vehicles), which rendered ambush concealment difficult, if not impossible, on the open plains of the Russian front. These vehicles, although crude and inadequate in many respects, were badly needed and the Wehrmacht used these poorer weapons systems as a "temporary" method of increasing the number of available mobile anti-tank guns, until better designs could be created. The first of these converted vehicles to reach the hands of troops in any quantity was the conversion of the Czech LT 38 (or TNHP) tank to carry the captured Russian 7.62cm field gun, otherwise designated as the Sd. Kfz. 139; this vehicle was the subject of an earlier article in AFV-G2. The 7.62cm gun was highly effective against it's former owners, and was widely used on the Eastern front. By May 1942, however, the German situation in regard to the availability of anti-tank guns was changed to the point that a new series of self-propelled guns were ordered by the Ministry of Armaments; this new series was to be armed with the 7.5cm Pak 40 anti-tank gun, which was just reaching a moderate level of production, and they were again to be conversions of the Panzer II. and Czech Panzer 38(t) tanks, however, utilizing any and all improvements recommended by experience.

In the spring of 1942, the Ministry of Armaments, through existing channels of communications, had requested user evaluations of the 7.62cm equipped vehicles described above. This request asked that small unit commanders (of platoons and companies) evaluate their equipment in the light of shortcomings and also superior qualities. The results were illuminating to the higher officials of the Wehrmacht who were already contemplating modifications. In criticizing the Sd. Kfz. 139







7.5cm PAK 40/3 (L/46) auf
Panzerjäger 38(t)
Sd. Kfz. 138
Marder III.

Drawn By: S. R. COBB

Scale: 1:32

the writers were almost universal in mentioning the awkward high silhouette and the inadequate armor protection given to the gun crew. The users did praise the good speed and maneuverability of the vehicle and the simplicity of maintenance of the Czech chassis and power plant.

On 18 May 1942, the German Ministry of Armaments ordered Ceskomoravska Kolben Danek (the producers of the Panzer 38(t) tank) in Prague to start construction of an improved anti-tank vehicle, based on the 7.62cm armed Sd.Kfz.139. This vehicle was to be armed with the now-available 7.5cm Pak 40 gun. Work started immediately, and the first vehicle was delivered to the Wehrmacht for testing in June; others followed quickly, as the first vehicle proved itself.

The initial vehicles to be produced were designated 7.5cm Pak 40/3 auf Pz.38(t), Sd.Kfz. 138, Ausführung H. The term "Marder III" was not given, officially at least, to this vehicle until later in 1943, when Hitler recommended the name for all of the light armored anti-tank vehicles of the conversion type. "Marder III" was the name given to all of the types based on the Czech chassis (the name being given also to the Sd.Kfz.139), while parallel vehicles based on the Panzer II. were named "Marder II." There was also a "Marder I." based on the French Lorraine chassis. It may seem strange to designate the first models of a new vehicle as the Ausführung H (or Model H), but this designation only continued the model letters of the original Panzer 38(t), which was in the "H" series when production was terminated. Later versions of the Sd.Kfz.138 were sometimes called "Marder 38(t)" or "Panzerjäger 38(t)" but these simply seem to have been non-official or familiar names used interchangeably with the official name.

Early production vehicles came off the assembly lines looking as shown in the three-view drawings. The chassis of the Panzer 38(t) was relatively unaltered, except for the removal of the turret race and the enlargement of the circular hole to rectangular shape. Initial models retained the hull-mounted machine gun; this was a Czech ZB 37 weapon of 7.92mm caliber. Two crew members, the driver and radio operator, were stationed in the hull as they had been in the tank version. The engine compartment was unaltered, except for the addition of storage racks built on the top of the compartment to hold the canvas gun compartment cover as well as other crew equipment. The engine was increased in power, from 125 to 150 horsepower; this increase was done at the expense of engine life, by increasing the peak available r.p.m. from 2200 to 2600. Actually, the engine was sufficiently robust so that engineers were unconcerned about any loss of engine life, and it was felt that the resulting extra speed and pulling power were worth any loss of serviceability.

The 7.5cm Pak 40 anti-tank gun was modified for installation in the vehicle by deleting the trails, and the weapon was mounted on a pedestal forward of the rectangular fighting compartment, with the recoil rails extending rearward to bridge over and divide the fighting compartment in half. Since the gun was somewhat nose heavy, and external brace was provided to prevent damage to the traverse and elevating mechanism during vehicular movement. When the gun was to be used in combat, a crew member would have to lower the barrel brace to free the gun. The superstructure of the fighting compartment consisted of angled side extensions of the basic gun shield, and armored sides. Construction continued Czech practices of bolted-together plates. This superstructure was an improvement over the Sd.Kfz.139, in that the armor was better sloped to deflect enemy fire and the armored sides were enlarged to offer better protection to the two man gun crew. There was a small "roof" of armor directly above the gun breach; this seems to have been for protection of the gun (from the elements) rather than to offer the crew any overhead cover. There was an arrangement of one transverse and two vertical rods fastened to the superstructure sides; this system of rods was used to hold a canvas cover to give the crew some protection against the weather. The gun crew consisted of two men; a gunner/vehicle commander who stood on the left of the gun, and a loader who stood on the right. Both crew members were provided with periscope blocks to allow vision to the front. The gunner's optical sight system was protected from enemy fire by a sliding armor cover; this could be slid horizonally to expose the lens when required. Ammunition storage was mainly beneath the exposed fighting compartment, except for the "ready" ammunition which was carried in tubes along the loader's side of the superstructure. 41 rounds of ammunition for the 7.5cm gun were carried, while the machine gun was provided with 1200 rounds of belted ammunition The 7.5cm Pak 40 was a powerful weapon, with a higher muzzle velocity than the effective 7.62cm Pak 36(r). Penetration with the Pzgr. 39 shell was superior to the Russian gun, although performance with the lighter Pzgr. 40 shell lagged behind the Soviet gun, and enemy targets could easily be destroyed out to ranges of 1000 meters. The Marder III. quickly became a popular gun system with it's new crews when it went into service with divisional anti-tank battalions of Panzer- and Motorized Divisions during the late summer and autumn of 1942. There were still some problems with the new vehicle; the forward mounting of the anti-tank gun made the vehicle very top and nose heavy and the superstructure armor, although sloped better, was still inadequate by crew standards. All-in-all, though, these problems were considered minor at this time, and the Marder III. was a most useful addition to Germany's arsenal of self-propelled guns that were capable of defeating the Soviet T-34 tank.

LIBYA - 1940

"The Start of the Desert War"

by Capt. Lee D. MacMahan

In early 1940, General Sir Archibald Wavell could only count on some 86,000 men of the British and Commonwealth forces for the defense of Egypt and the Suez Canal. The English had been forced to send troops to France, while the Italians had been able to build up an impressive army in Libya of no less than 250,000. This force included nine regular infantry divisions of 13,000 men each, three elite Blackshirt divisions and two divisions of native reserves - all supported by General Malett's "Raggruppamento Oasi Meridonali", a crack armored formation. The Italian Supreme Commander of the Armies of North Africa was Marshal Bergonzoli. This able officer divided his command into two Field Armies. The 10th Army was sent to Cyrenaica - the Libyan province immediately to the west of Egypt and having a joint frontier of 800 miles with that British Protectorate. The 5th Army was stationed to the west in Tripolitania on the Tunisian border.

In June, following the British mauling at Dunkirk and the fall of France, the 10th Italian Field Army, commanded by General Balbo, began the great drive to the Nile. Greatly outnumbered in both men and equipment, the English were forced steadily back ever closer to Cairo. By mid August the Italian drive was slowed by the sudden death of General Balbo in an air crash at Tobruk. However, within a week of the crash General Graziani had assumed command and had established a large forward base at Sidi Barrani, garrisoned by some 100,000 picked men.

While the Italians were engaged in building fortifications around Sidi Barrani, the English had formed a rather unusual combat unit - THE LONG RANGE DESERT GROUP, commanded by Ralph Bagnold. This "commando" like unit carried the war to the Italians - striking deep into the enemy controlled desert, they gathered intelligence on all military units, and destroyed or harrassed the Italians where ever possible.

By December 1940, a gap had been located, where no Italian patrolling seemed to take place. The area between Safai and Nibeiwa. General Wavell planned an all-out joint military venture. The Royal Navy would attack all coastal defenses between Maktila and Sidi Barrani. The Royal Air Force would supply the close air support, while two divisions, the 7th Armored commanded by Major General O'Mare Creagh and the 4th Indian Infantry Division, under the command of Major General Beresford-Pierce would attack on the ground.

At 0400 hours on December 9, 1940, the attack began. The English force struck at the Italian weak point, men and equipment poured through the undefended area. The fortified camp of Nibeiwa fell to the 7th Armored within the first hour, closely followed by Tummar West, and Tummar East. By the end of the first five hours of fighting the totally surprised Italians had lost 37 of their medium tanks, most of which were captured before their crews could bring them into action. The 7th Armored advancing at a rate of approximately 12 m.p.h. had achieved a full and complete surprise attack.

Tactical Symbol – British 7th Armoured Division "The Desert Rats"

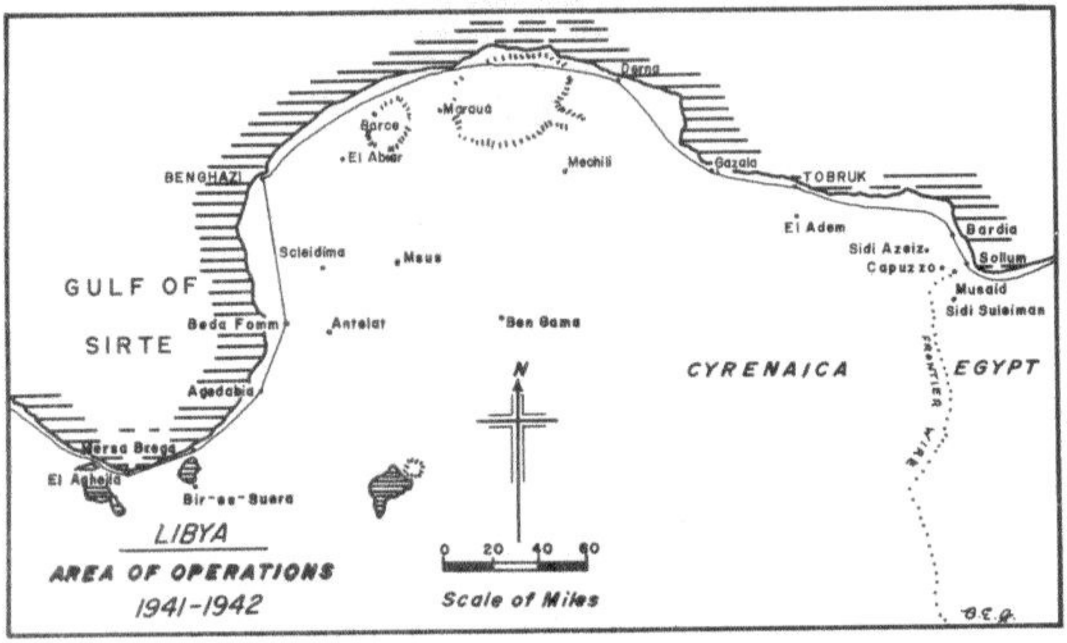
By the third day leading units of the 7th were pounding the defenses of Sidi Barrani, which fell by early that afternoon. The victorious English found they had captured General Gallina and his staff, along with some 500 vehicles of which some 62 were tanks. General Amica's "Catanzari" infantry division surrendered intact at Buq Buq. By December 16th, one week after the initial attack, Sollum fell; along with Fort Capuzzo, Sidi Omar, Musaid and the Halfaya Pass. The Italian casualties were by this time some 3,000 killed, wounded or missing, while some 30,000 had been taken prisoner, including 5 generals. English casualties were 72 killed or missing and 737 wounded.

Of the six major Italian divisions that had set out to capture Egypt, less than half remained, and those still in the field had lost the vast majority of their equipment and supplies.

January 2, 1941. The English forces again attacked the Italian army all along a ten mile front. General Wavell's plan was simple; he felt that the Italians - some 30,000 men under the command of General Bergonzoli - would not offer much resistance as the English advanced on Bardia.

General Wavell was correct as Bardia's forces put up only a mild defense of the town. The final assault began at 3 p.m., with the heavy tanks of the 7th Armoured in the lead. By 6 p.m., the 7th Armoured cut deep into the desert to hit the large air field at El Adem, where 87 enemy aircraft were caught on the ground and destroyed. El Adem was one of the three major Italian air strike bases, ans was located just outside of Tobruk.

As the English strike force carried on the mopping-up operations, they were joined by three squadrons of the 6th Australian Cavalry, who from the 72 captured tanks from Sidi Barrani had managed to put 16 medium tanks into combat order. These three squadrons were code named "Ringo". "Ribbit", and "Wombat", and to distinguish the captured Italian Carro Armato Tipo M13/40's as now Australian manned, they had painted large white kangaroos on the sides, turrets and hulls of the tanks. The Australians found the M13/40 a rather unwieldy and uncomfortable vehicle, but the Italian 47mm gun a deadly and hard hitting weapon.



On January 29th, General Wavell sent two brigades of the 6th Australian Division along the coastal route to Derna, some 100 miles to the west. Just before reaching this Italian strongpoint, the brigades split; the main body continued on to overrun Derna and then proceed towards Giovanni Beda. The other unit cut across the desert badlands to come upon Giovanni Beda from the rear. The two brigades joined up again, without firing a round of ammunition, as the fortified Italian town had been abandoned. The two units made ready for the final push on Bengazi, located some 1000 miles from Cairo. This city fell to the victorious Australians on February 9th, 1941.

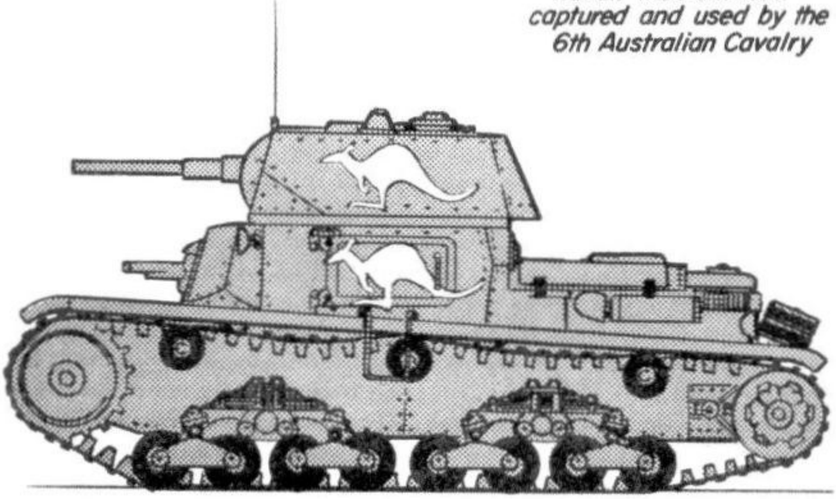
On February 6, 1941, an English column under the command of Lt. General O'Conner came upon a large Italian force, under the command of General Tellera, consisting of some 30,000 men and approximately 130 armored vehicles. The Italian army sttod its ground and gave battle. Since the British column was across it's only line of retreat and it was a battle to the death, no surrender was asked. The Italians attacked so fiercely that twice the English armored vehicles had to withdraw from the battlefield to rearm themselves.

At last, the English forces gained the upper-hand; everywhere the Italian attacks were fought to a standstill, and broken up. General Tellera was killed during the second night; fighting as he personally led one of the assaults. His adjutant, General Cona, assumed command. By the third day the English forces began flushing out small pockets of Italian forces from the beaches and marshy plains. The Italian infantry continued to fight with bayonet and grenades and were forced back into the sand dunes.

By the morning of Sunday, February 9, 1941, the back of the Italian resistance was broken, and thousands of wounded, exhausted, and hungry Italian troops were taken captive. Among the prisoners was found Italian Marshal Bergonzoli. The Battle of Beda Fomm was over.

By dawn of February 10th, O'Conner was again sweeping toward Agedabia nearly 200 miles south of Benghazi. It had been a complete victory for the English. General Graziani's 10th Army had been destroyed in the field. Of the 250,000 Italian troops in Libya, half had been killed, wounded or captured. In addition, 198 armored vehicles were taken, along with the major portion of all other types of Italian military equipment and aircraft.

England was at last triumphant in the field, and the danger to the Suez Canal was ended. However, at this same moment a new chapter was being written in the book of desert warfare. The landing of a Heinkel III. bomber at Castel Benito on February 12th meant far more to the Axis war effort than just a new aircraft for the Luftwaffe base there. It carried a German officer who would soon change the course of history in Africa.......General Erwin Rommel who would become famous as "The Desert Fox".



Carro Armato Tipo M.13/40
Italian Medium Tank
captured and used by the
6th Australian Cavalry

Product Review: Origins of World War II., Avalon Hill, $8.98 by Jim Garrison

Need a way to start a schizophrenic wargame? In the "Wargame Review" of Volume 2, Number 10, the coordination of the Avalon Hill game and the board game were discussed. However, the article always took into consideration that the war had already started. Now, Avalon Hill has provided us with a way of starting the war. Their game starts with peaceful nations and ends with a world war.

Titled Origins of World War II, this new "bookcase" game recreates the political battlefield that existed between 1935 and 1940. Avalon Hill claims that this game can be played by two to five players in an hour, but then we have heard those stories before. Origins retails for $8.98 - in bookcase package displayed in department stores, stationary outlets, book stores, hobby shops, and wherever Avalon Hill games are sold.

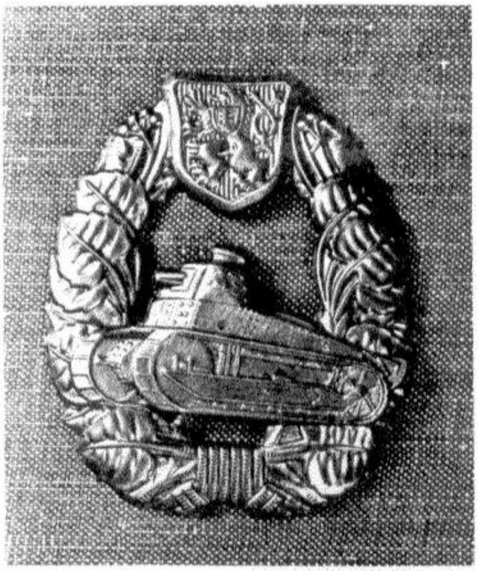
Classified Ad: Collections of Armor on Postage Stamps! Mounted in see-through holders, 15 different for $2.00, 20 different for $3.00, 25 different for $4.00, or 30 different for $5.00. Overseas orders add $.25. Satisfaction or refund! Write: Harold Scharff, 2410-CA Barker Avenue, Bronx, New York 10467.

Classified Ad: Wanted! Photos, drawings and data on the Soviet SU-37 self-propelled AA gun and the Soviet SU-76 self-propelled gun for a serious modeling attempt in metal, scale 1:15. Please write: Christopher Bartels, c/o AFV-G2, P. O. Box 293, La Puente, California 91747.

The History and Development of Czechoslovak Armored Fighting Vehicles

Part I.

by Jiri T. Vojta



The Czechoslovak Armed Forces came into existance during the last year of World War I., as "Legions", composed of prisoners of war, formerly of the Austro-Hungarian Army. These Legions fought in France, Italy and Russia, and at the conclusion of hostilities brought home a vast conglomeration of Italian, Russian and French weapons. In addition to this type of materiel, the young Czechoslovak republic also possesed large quantities of equipment used by the Austro-Hungarian forces. It was not an easy task for the military command to modernize and standardize its fighting force. Although the year 1918 brought peace to Western Europe, war and revolutions continued in Eastern Europe until 1920, and the Czechoslovak Armed Forces were called upon to repel the Communist inspired Hungarian invasion of Slovakia in 1919. It was during this brief war with Hungary that the Czechoslovak Armed Forces used, for the first time, an armored fighting vehicle, an Italian Lancia armored car. The vehicle proved to be a success in Slovakia, and the Czechoslovak General Staff requested additional vehicles. By this time, however, the invasion was repelled, and the need for additional armored cars could no longer be justified. Up to 1921, the lonely Lancia remained the only armored fighting vehicle of the Czechoslovak Army.

In 1921, the Chief of the French Military Mission in Czechoslovakia, General Pellé, urged the Czechoslovak General Staff to purchase enough French light tanks to organize the nucleus of a tank force. This suggestion was only partially heeded, and one Renault M18 was obtained at a very high cost for training purposes. Gradually, the tank force was increased to seven Renaults. In 1923, the Czechoslovak General Staff authorized the creation of the first "Attack Vehicle Company" with the authorized strength of seven tanks, one to be equipped with a radio. The tank commanders were issued with the newly designed Tank Force Badge, to be worn on the right breast pocket. The Badge bore the image of the Renault M18 tank inside a wreath, surmounted by the rampant lion of Bohemia.

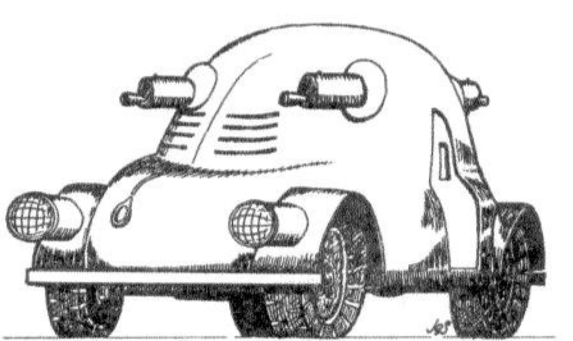
These seven Renaults soldiered on as the only tank force of Czechoslovakia until 1931, when new tanks of Czechoslovak manufacture began to be introduced. All through the 1920's, these French tanks served well, participating in all maneuvers, and were used for the training of new drivers. It is interesting to note that in 1939, when the Germans occupied Czechoslovakia, these Renaults were still in running condition after so many years of service.

Armored Cars

While the Czechoslovak command favoured an armored type of fighting vehicle, there was no enthusiasm for the tank! By a "fighting vehicle", the Czechoslovak military thinking meant the armored train and the armored car. As a result of this hostility towards the tank, large amounts of money were spent on the development and construction of armored trains and cars. The Škoda works constructed, in the 1920's, six very advanced armored trains which served well up to the time of the German occupation.

In 1923, the Škoda company completed a prototype of an armored car, the PA-II. ("PA" stood for "pancéřové auto"). The vehicle, though based on an ordinary truck chassis with four wheels, was of an unusual construction. What was different about the PA-II. was that it had no turret, and that it could be driven in either direction. The armored body strongly resembled a tortoise shell, having no protrusions. An almost perfect slant of steel plate was thus achieved. The vehicle was armed with four Schwarlose 8mm watercooled machine guns, each with a 90 degree cone of fire, giving the vehicle a full 360 degree field of fire. Each machine gun was mounted in a very modern ball mount. The overall silhouette was very low, and the front of the vehicle was identical with the rear. Two sets of headlights were provided, as well as two driver's seats. The army acceptance trials found the vehicle to be substantially better than the Lancia and Fiat Torino armored cars regarded at that time as the best of their type. In 1924, the car was officially accepted under the designation PA-II. Želva (or Turtle). An order for 51 such vehicles was placed with Škoda, and in 1925, all were delivered. In April of that year, the Czechoslovak Ministry of National Defense authorized the creation of one squadron of "Attack Armored Vehicles", to be operated as cavalry. As a matter of fact, the Heavy Dragoons were to operate this vehicle.

The PA-II. was generally regarded as one of the best armored cars in the world at this time, and it was favourably commented upon by many foreign observers. In 1926, it became obvious that the enemy might also use armored cars with which the PA-II. could not cope, since it was armed only with machine guns. The need was clearly for a vehicle armed with a cannon. The Škoda company had such a vehicle developed, and they offered it to the army as a supplement to the PA-II. This new vehicle was accepted under the designation of Vz.29 TPA ("T" stood for "těžké" or heavy). The intended armament was to be a heavy machine gun, caliber 14.5mm, with ultra high velocity ammunition, or the 37mm cannon. Since neither weapon was fully developed, the heavy armored Škoda vehicle was temporarily given a pair of Schwarlose machine guns. This, of course, defeated the whole purpose that the vehicle was created to solve.



PA-II. Želva Armored Car

While the PA-II. served well with an excellent maintenance record, by the end of 1929 the vehicle was deemed to be obsolete. A new armored car was ordered, this time from the Tatra automobile factory which specialized in air-cooled engines. The new Tatra armored car was much faster, it needed no radiator, and it had six wheels which gave it some cross-country capability. The army accepted this vehicle without any modifications as the Vz.30 PA. The Tatra design returned to the revolving gun concept, being armed with one heavy Brno 7.92mm machine gun. In addition one light Vz.26 machine gun (Bren Gun) was placed next to the driver in a slot. The Tatra had only one driver's seat and could be driven only in one direction. As a part of the Czech cavalry squadrons, the Tatra Vz.30 PA served in the armed forces up to the Czechoslovak mobilization in 1938. The car was later used by the forces of the newly established Slovak Free State. It was well liked by the men who served in it. The older PA-II. armored cars were sold by Czechoslovakia to the Vienna Police, who used them to good effect to suppress a communist insurrection in that city in 1934.

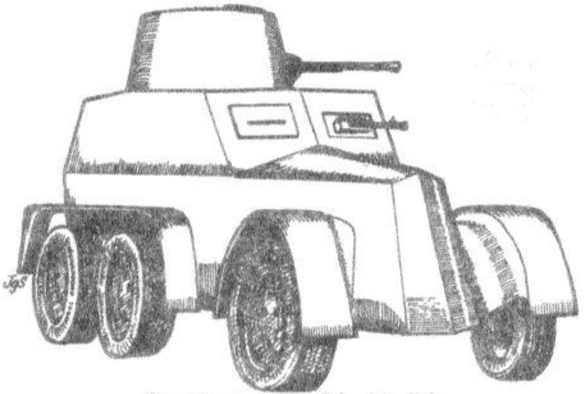
At this point, a few words on Czechoslovak military strategy are needed: In the 1920's, and unfortunately well into the 1930's, Czechoslovak military thinking visualized the cavalry as the decisive mobile force to be used in defense under the following circumstances: When and if a static and well defended position was broken through by the enemy, the General Staff would dispatch a strong force of cavalry combined with armored cars and armored trains to stop the enemy. The cavalry would then swarm through the fields, while the armored cars would follow the roads and support the horsemen with withering machine gun fire. Given the dense railway network of Czechoslovakia, the armored trains would be sent in to follow the cavalry in order to give them the needed artillery support. Thus, from the very outset, Czechoslovak military strategy was tied to a defensive concept of war, where three widely divergent elements; cars, horses and trains could be combined as a fast mobile reserve of division strength. As we shall see later, this wholly erroneous concept persisted in Czechoslovakia, with some modifications, up to the year 1938, and it led to the creation of four so-called "Fast Divisions". Tanks and tracked mobile artillery did not fit this military concept, due to the fact that such vehicles were considered slow and fragile to cover great distances.

The Development of Czechoslovak Tanks

In keeping with the concept of the Fast Divisions, the Czechoslovak Ministry of National

Defense requested the development of a tank which would have both wheels and tracks. This condition was essential, for the tanks, if they were to be employed at all, had to be moved quickly from a central reserve area along cobblestone roads several hundred kilometers to the fighting zone. Clearly, no tank of the 1920's could risk such a wear on the tracks just prior to battle. The Ministry was very specific; it demanded that 300 km a day be covered by such a vehicle: The Škoda Works, the Tatra automobile factory, and the Českomoravská Kolben Daněk (a machine tool factory) faithfully attempted to satisfy this demand, but to no avail. The combination track-wheel fighting vehicle simply could not be constructed. Countless prototypes were offered; the Ministry tested them, only to have them rejected. Millions upon millions of Czechoslovak crowns were spent upon this unattainable objective.

In 1930, yet another idea, this time an English one, found strong support in the Czech military establishment; it was the "baby" tank concept. The resulting vehicle, initially designed by the firm of Carden-Lloyd, was a small tank, open on the top with a very low silhouette, yet fast and lightly armed. The Czechoslovak command visualized this type of a fighting vehicle as a mobile machine gun nest to be employed in conjunction with infantry. Rather than develop a domestic design, the Českomoravská Kolben Daněk (the ČKD), a Prague machine tool factory, purchased the manufacturing rights, and after some modifications proceeded to construct the new "baby" tank. The cost of each unit (without the machine guns) was 131,200 Czechoslovak crowns (in 1930, the exchange was 30 crowns to 1 US dollar). Contrary to previous procedures, the Ministry of National Defense ordered, without any trials, 70 of these vehicles from the ČKD. When the first tank was delivered to the army, it failed completely to meet even the most basic army requirements.. On August 21, 1930, soldiers tested the tank's armor, and from a distance of 50 meters, the standard armor piercing bullet of 7.92mm caliber fired from an ordinary Czech issue rifle, the Vz. 24, penetrated the vehicle with ease! At that point, the army refused to carry out any further tests! The trial was, however, continued at the personal intervention of Mr. Bradáč, the Minister of National Defense. It was pointed out that the rifle bullet fired was armor piercing, which was not a fair test! After the penetration tests, road tests began and they were even less satisfactory; after 148 km of sustained driving on country roads, the main driving axle broke. The trials were continued several months later, using another tank from the factory. The results were, needless to say, the same. The vehicles were returned to the factory for modifications, and tests continued for another three years. Each and every time, the army refused to even finish the trial. As a cross-country vehicle, the tank was almost useless and it had to be serviced every 100 km or so. As a road vehicle, it suffered even more (those cobblestones again) and could seldom cover a distance of 200 km without some major part breaking. In 1933, the Czechoslovak army finally and irrevocable refused to accept any more of the 70 tanks already produced. The Minister of National Defense now stepped into the picture and ordered the army to accept the tank under the designation of Vz. 33. The new tanks were armed with a light machine gun, the Vz. 26 (Bren Gun), and were assigned to the rapidly growing "Attack Vehicle" center at Milovice. The Czech Vz. 33 differed only in minor details from the better known Bren carrier. Its weight was 2.5 tons, the armor had a thickness between 5 to 12mm, and the power plant was the Czech Praga engine developing 31 hp, and giving the vehicle a speed of 35 km per hour. Most of the tanks had an additional Vz. 26 light machine gun mounted on the rim of the crew compartment, since observation from inside the vehicle was rather poor.



Czechoslovak PA Vz.30
Armored Car

Being forced upon the army, these tanks had to be accepted, but they were not liked. Usually every other vehicle was undergoing repairs, and those capable of driving were nursed along at modest speed by selected drivers. Only level terrain with no rocks could be used for training, less the tanks suffer damage. The crews cristened the Vz. 33 "Black Peter", a Czech synonym for bad luck. The commanding officer of the 2nd Division wrote to the Ministry of National Defense:

> "The 'baby' tanks did not prove themselves at all. They
> belong to the scrap. They are dangerous to drive in at

> higher speeds and are so unreliable that one can count on them to break down in the most critical moment."

This letter and other critical comments did not worry the Ministry in the least, for the initial order was placed with the ČKD for purely political reasons. The decision was made by the Council of Ministers long before the army was even notified. The factory in question, the ČKD, was gripped by the depression and was about to close down. The ČKD was notorious for its Communistic workers; in fact more militant Communists could not be found anywhere in the country. The citizens of Prague were, over the years, thoroughly frightened by the long lines of the ČKD workers, the "Red Guards" as they called themselves, who always marched with clenched fists during the May 1st celebrations singing the International. Under no circumstances could the Czech government afford to have these radical Communists unemployed. The order for 70 tanks was simply a government subsidy to ČKD in order to keep the workers off the streets.

The ČKD factory, long accustomed to the construction of railway cars and machine tools, was rapidly challenging Škoda in the field of armaments during the 1930's. It's engineering bureau was for some years busy with the design of a new light tank. In 1933, ČKD handed over to the military testing team at Milovice the prototype P-II. (The "P" stood for the Czech word "pancéř".) The tests proceeded reasonably well: the prototype tank was driven 4000 km without any major mishaps. The army was, however, nowhere near the completion of the tests, when the Ministry of National Defense ordered the not yet fully tested tank to be accepted, as the LT Vz. 34 (or "Lehký Tank Vzor 34"). The reason was, of course, the same as with the Vz. 33 tank; the ČKD was again about to close down, and the fear of a Communist worker's revolt in Prague forced the government to act swiftly. With the depression at its worst, and with some 2 million Czechoslovaks unemployed, a Communist revolution was a very distinct possibility. All efforts had to be made in order to provide work, even if the project was not really wanted. The Czechoslovak military establishment had, even during the depression, relatively large funds and these the government decided to use, not according to military needs, but to alleviate unemployment. In the case of the P-II., however, the decision to order mass production of a yet untested tank proved to be a good one. The P-II. was designed by Ing. Alexander Surin of ČKD, who carefully avoided the mistakes made with the Vz. 33. The weight of the LT Vz. 34 was 7.5 tons, and the motor was of 62 hp, which gave the tank a speed of 30 km per hour. An excellent performance indeed for 1933. The P-II. prototype was to have been armed with the new Škoda anti-tank cannon of 47mm caliber. This weapon was, unfortunately, not yet fully tested and so a suitable substitute had to be found. Škoda offered the already proven and tested 37mm cannon, but on the condition that it be allowed to supply the whole turret assembly. ČKD objected to this condition, since its contract with the army called for the whole vehicle to be manufactured in its plant. The debate was a stormy one and had to be resolved with the aid of the highest government officials. (Apparently, the President of the Republic had to intervene.) The tank had only light armor, from 8mm to 15mm in thickness. This was entirely in order, since the urgent need was for a fast vehicle, not a heavy one. There were also some problems with the machine guns that were to be used; the original design counted on the about-to-be-developed heavy machine gun Vz. 37. Since this weapon was not yet in production, the proven and tested Vz. 26 was mounted; one coaxially with the cannon, the other in a ball mount next to the driver. The greatest drawback of this new tank, the LT Vz. 34, was its cost. ČKD asked 346,750 Czechoslovak crowns per unit, minus the guns. This sum was entirely too high; the factory management forced the price upon the government by threatening to dismiss several thousand workers. The government did not wish to contemplate the consequences of such a move, and the price was paid. The initial order was for 50 vehicles and these were delivered by 1935. The following year, the LT Vz. 34 was given a newer and somewhat quieter motor which increased its speed to 46.5 km per hour. The tank proved most satisfactory. All reports delivered to the Ministry prior to the mobilization of 1938 stated that the vehicle was reliable, especially in winter; it was fast and needed only two hours of maintenance per week during normal use. The 37mm cannon, with a muzzle velocity of 675 meters per second, was capable of destroying any tank at that time, up to 600 meters. The cannon was provided with a very effective silencer and flash hider. The LT Vz. 34 equipped an entire battalion, which was incorporated, together with cavalry, into a new "Fast Division".

To be continued next month

Normandy, D Plus 5

by Bruce MacRae

In Normandy, June 11, 1944, Sergeant Leo Gariepy of the 6th Canadian Armoured Regiment maneuvered his M-4 Sherman towards the Caen-Bayeux railway near Britteville. The accompanying infantry had been allowed to climb up on the tanks for a ride into combat and they were having a good time of it. Near the railway, the tanks detoured around a dead Panther tank, which aroused the new men in the Squadron, for many had never seen an enemy tank before. The tanks moved into a spacious wheatfield just before Le Mesnil-Paty. Over the radio, Gariepy heard one of the units officers making comments on every house, tree and mud hole the tanks passed. As this made Gariepy sick to his stomach, he turned off his radio; this was possibly a mistake, for otherwise he might have heard the order for his unit to withdraw.

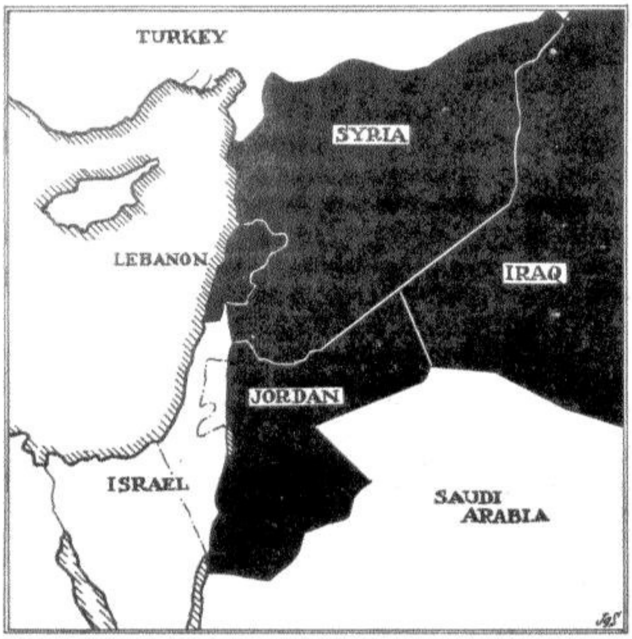
As his M-4 rolled through the wheat, Gariepy was looking out of the turret for any evidence of mines. He found himself looking into the eyes of a German Panzergrenadier. At the same time, artillery shells screamed overhead towards Britteville. Gariepy switched on his radio set and reported that he was in the midst of enemy infantrymen. By this time, they had passed through the strong part of the infantry defensive position and were being fired upon from front and rear. All hell broke loose, as the Canadian infantry jumped off of the Sherman, and the Germans desperately tried to avoid the tracks of the tanks as they kept on advancing. Knowing that A and B Squadrons were coming up behind Gariepy, he told his driver to speed up and ignore the German infantry. As they drove on, German and Canadian infantrymen were all mixed up behind them, in hand-to-hand combat.

As the M-4's reached a slight rise in the ground, they were fired on by German anti-tank guns; six Shermans blew up in rapid succession. Meanwhile, C Squadron moved on to nearby high ground and began to open covering fire; they were quickly engaged by the same enemy anti-tank guns. Due to the fierceness of the enemy combat, the Canadian units were forced to withdraw the same way that they had advanced into the fighting.

B Squadron became cut-off and it was completely eliminated. Gariepy was the last tank to be destroyed. As the "point" or lead vehicle, he arrived first, and he had the impression that the Germans were not in defensive positions, but were forming up to attack. Gariepy saw three Sd. Kfz. 251/1's lined up, with Germans milling around in confusion. Then he saw some thirty tanks and a battery of 88mm guns still limbered up; then more halftracks and men dismounting. The M-4 Sherman opened fire and Gariepy accounted for three of the later halftracks before his tank was hit and set on fire. Bed rolls and spare machine gun ammunition, all slung on the outside of the tank, were blazing. The tank was pouring out clouds of dense black smoke as they reversed; 600 yards through the wheatfield with German grenadiers throwing grenades at them, Then they bailed out and the crew crawled into a ditch, and back to friendly lines. Their old faithful DD tank was burning brightly.

Of the entire Canadian armoured regiment, 37 tanks had been lost, 95 officers and men killed. No officers came back, and only three NCO's survived the attack. On that day, 11 June 1944, the regiment suffered 1/3rd of all their casualties in the European Theater of Operations. In the evening, several ambulances drove out into the wheatfield. Men waved Red Cross flags and sprang out of the trucks to collect the wounded. For the next few minutes, not a shot was fired by either side as the German and Canadian dead and wounded were gently loaded into vehicles.

COMING SOON: In response to numerous requests from our readers, we will be reprinting the best articles, illustrations, etc. from Volume I of the AFV-G2 in a single folded volume. Planned publication date will be the end of December 1971. Pre-publication price is $3.50. The price upon release will be $3.95 so reserve your copy now by sending your check for $3.50 to Baron Publishing Company, P. O. Box 293, La Puente, California 91747.

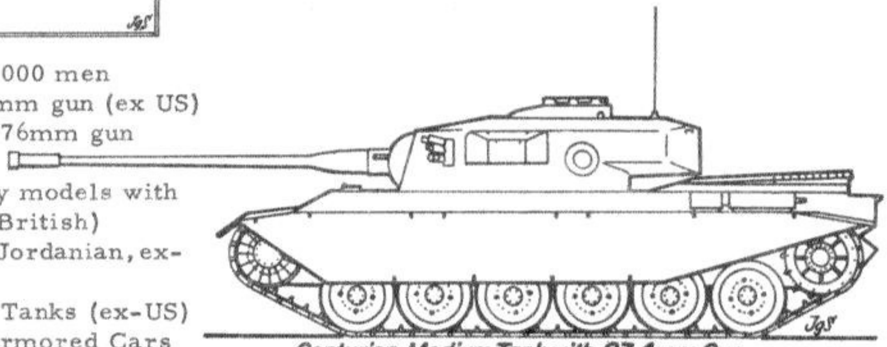


ARMOR G-2

Current Data on the World's
Armored Forces.

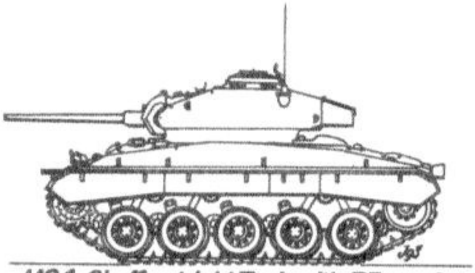
Armor of the Arab Nations; Part 2

LEBANON - Armed Forces: 15,000 men
18 M-41 Light Tanks, 76mm gun (ex US)
42 AMX-13 Light Tanks, 76mm gun (ex-French)
40 Centurion Tanks, early models with 83.4mm gun, ex-British)
some Charioteer Tanks (ex-Jordanian, ex-British)
some M-4 Sherman Medium Tanks (ex-US)
some T-17E1 Staghound I. Armored Cars (ex-British)



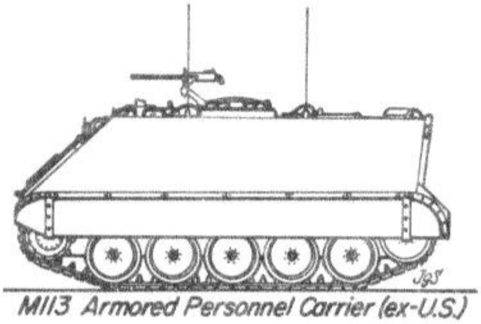
Centurion Medium Tank with 83.4mm Gun (ex-British)

IRAQ - Armed Forces: 78,000 men
300 T-54 or T-55 Medium Tanks (ex-Soviet)
180 T-34/85 Medium Tanks (ex-Soviet)
55 Centurion Medium Tanks, 83.4mm gun (ex-British)
40 M-24 "Chaffee" Light Tanks, 75mm gun (ex-US)
75 AML-60 and AML-90 Armored Cars (ex-French) (with an option to purchase another 75 vehicles)
some M-2 Armored Halftracks (ex-French, ex-US)
some Ferret Armored Cars (ex-British)
some SU-100 Self-propelled Guns (ex-Soviet)
some SU-152 Self-propelled Guns (ex-Soviet)



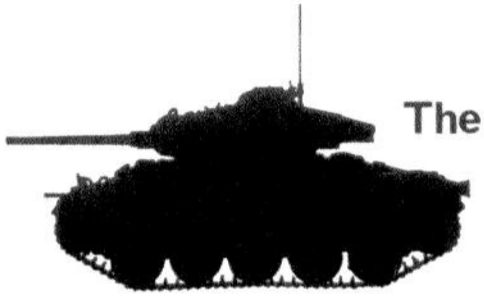
M24 Chaffee Light Tank with 75mm Gun (ex-U.S.)

JORDAN - Armed Forces: 55,000 men
250 M-48A2 Medium Tanks, 90mm gun (ex-US) (1967 war losses replaced by more tanks)
some M-47 Medium Tanks, 90mm gun (ex-US)
100 Centurions Mark 9 and 10, 105mm gun (ex-British)
75 Centurions older models (Mark 3 to 7)(sent to Jordan from Egypt and Iraq)
200 M-113 Armored Personnel Carriers (ex-US)
150 Saladin Armored Cars, 75mm gun (ex-British)
some M-114 Armored Reconnaissance Vehicles (ex-US)
some Saracen Armored Cars, (ex-British)
some Ferret Armored Cars (ex-British)
some Centurion 20-pounder guns mounted on Cromwell hulls, as Self-propelled guns (ex-British)



M113 Armored Personnel Carrier (ex-U.S.)

- Continued on Page 27 -



The M-24 Chaffee

by Jim Garrison

The experiences of the British Army with the M-3 Light Tank in the Western Desert had pointed up the inadequacy of the 37mm gun. By early 1943, it was clear to Ordnance personnel that the late model M-3 and M-5 Light Tanks would have to be succeeded in service by another light tank with greater hitting power. Testing of the new T7/M-7 Light Tank in the Spring of 1943 showed this vehicle to be eight-tons over the twenty-ton limit imposed for light tanks; this vehicle was than reclassified as a medium tank, and the search for a better light tank was intensified.

In an attempt to increase the firepower of the light tank, Ordnance personnel tried experimental mountings of the M-3 75mm gun from the 75mm Howitzer Motor Carriage M-8. Tests indicated that the M-5 Light Tank chassis used in this vehicle was stable enough for the 75mm gun, but the absense of many tank characteristics in the M-8 and the small turret space in the M-5A1 prevented its use as a combat vehicle. The development of an improved 20-ton light tank, which was to mount a 75mm gun, was proposed at this time.

Tests were also conducted on the new T70 Tank Destroyer, to see if this vehicle could fulfil the requirements of the Armor Board at Fort Knox. While the T70 possessed an excellent gun and had superior speed, it was rejected by the Armor Board because of the open-topped turret and inadequate armor thickness. Another fact sited was the lack of a bow machine gun for anti-personnel use. All-in-all, the "Hellcat" could not be adapted to become the new light tank.

With all of the above mentioned failures, a new light tank design was attempted. As recommended by the Armor Board, many of the features of the T70/M-18 "Hellcat" were incorporated into the new tank, the T24. The most noticeable feature incorporated was the torsion bar suspension. Another adopted idea was the transmission mounting; which was distinguished by the octagonal plate on the hull front. This plate could be removed for easy access to the transmission, for maintenance and simplified removal. Along with many other features, the "Hellcat's" low silhouette hull layout was also merged into the new "Chaffee" design.

The main armament selected for the new tank was the 75mm Gun M-6, which had been developed by Ordnance for use in the B-25 bomber. Since this was an aircraft weapon, it was light and small, with a concentric recoil system; the weight and size was very compatable with the concepts of the new T24 Light Tank.

The newly designed light tank was to have the power train of the M-5A1 Light Tank, and have "A maximum armor thickness of one-inch at pronounced angles with vertical." With all of these diverse recommendations and suggestions, it is amazing that the new vehicle would work at all, let alone be successful, but it was!

The prototype vehicles were designed and built at the Cadillac Motor Car Division of General Motors, the same facility that produced the M-5A1. The first pilot model was delivered in October of 1943, and tests at Aberdeen Proving Ground were successful enough to warrant a contract for 1000 vehicles. By the end of the war, more than 4000 M-24 "Chaffee" Light Tanks had been built and supplied to the Armored Force.

As with any new design, a number of experiments were made by Ordnance personnel. Since the "Chaffee" was a "kissing-cousin" to the M-18 "Hellcat", it was decided to compare the performance of the two different power plants. To do this, a "Chaffee" was built with an air-cooled Wright R-975C-4 engine and a torque converter transmission. This vehicle, designated as the T24E1, was still under development at the American Car and Foundry Company in August 1945, when the war ended. Another project attempted to mount a longer gun with a muzzle brake on the M-24, but interest was also lost on this project as the war ended.

There were many successful adaptions of the M-24 that saw service. The tank itself could be modified with a bulldozer blade, if the situation ever warranted it. Cadillac and Massey-Harris

- Continued on Page 32 -

TECHNICAL DATA: M-24 "Chaffee" Light Tank

MANUFACTURER: Cadillac Motor Car Division
General Motors, Massey-Harris

NUMBER PRODUCED: 4,070

CREW: 4* or 5 men

DIMENSIONS:

Length:	Gun forward	219 in.
	Chassis	196 1/2
Height:	To top of cupola	97 1/2
	To top of MG on pintle point	106 in.
Width:		116 in.
Ground Clearence		18 in.
Tread		96 in.
Turret Ring I.D.		60 in.

WEIGHT:

Loaded	40,500 lbs.
Empty	36,250 lbs.
Stowage	262 lbs.
Fuel	780 lbs.
Crew	700 lbs.
Machine Guns	146 lbs.

POWER TRAIN:

Engine: 2

Type... V8, Gas, liquid cooled

Make... Cadillac

Model... 44T24

Displacement... 346 cu.in. (per engine)

Net Horse Power... 110 @ 3400 RPM (per engine)

Max. Torque... 240 ft. lbs. @ 1200 RPM

Fuel... 80 plus octane

Fuel Capacity... 115 gallons

Fuel Tanks... 2

Engine Oil... 9 qts. (per engine)

Cooling System... 40 qts. (per engine)

Transmission:

Type... Hydramatic

Speeds... 8 Forward, 4 Reverse ***

SUSPENSION:

Type... Torsion bar

Bogie Wheels... 5 per side

Wheel size... Dual 25 1/2 by 4 1/2 inches

Wheel Construction... Stamped steel disk

Idler... Fixed, 22 1/2 by 5 dual steel disk

TRACK:

Type... Steel center guide, single pin, parallel grouser, rubber bushed

Width... 16 inches

Length of Ground Contact... 112 1/4 inches

Shoes Per Vehicle... 150****

Approved Track Types... T72, T72E1, & T85E1 *****

ELECTRICAL SYSTEM:

Starter... Delco-Remy Model 1118501, 24 volts

Batteries... 4 model 2H, 6 volt

Generator... Delco-Remy Model 1117309, 24 volt, 50 amp.

PERFORMANCE:

Speed:	Maximum on road	34 MPH
	Cruising	25 MPH
	On 3% Grade	17 MPH
	On 11% Grade	11 MPH
Maximum Grade		60%
Maximum Trench		78 in.
Vertical Wall		36 in.
Maximum Fording Depth		40 in.
Minimum Turning Circle (Dia.)		46 ft.
Fuel Consumption (Aver. Cond.)		7/8 MPG
Crusing Range - Hwy (approx.)		175 miles
	Crosscountry	100 miles
Max. Tractive Effort		1470 lbs./ton
Max. Allowable Towed Load, Gross		10,000 lb.

VISION AND SIGHTING EQUIPMENT:

Fire Control: Direct: Telescope M71G
Periscope M4A1 w/ Telescope M38A2
Indirect: Elevation Quadrant M9
Azimuth Indicator T12
Gunners Quadrant M1

Periscopes, One M4A1 and Three M6

COMMUNICATIONS:

Radios: SCR-508, 528, 538 or Brit. Radio #19
SCR-506, (Command Tanks Only)

Visual Signaling Equipment:
Flag Set M238
Ground Signal Projector M4
Panel Set AP50A
Flares M17 thru M22, twelve

FIRE AND GAS PROTECTION:

1 - 10 lb. CO2 Fixed (in engine compartment)

1 - 4 lb. CO2 Portable

2 - 1 1/2 qt. Decontaminating Apparatus

AMMUNITION STOWAGE:

75mm (M61A1, APC-T, M48 HE, or M64 WP)	48 rounds
.50 cal.	440 rounds
.30 cal.	3,750 rounds
.45 cal.	720 rounds
Hand grenades (Frag. MK 11, WP Smoke MK 11, or smoke colored M16 or M18	9
2 in. smoke mortar (Mk. I/L, Brit.)	14 bombs

TURRET TRAVERSE:

Type: Hydraulic, Mfgr. The Oil Gear Co.

Auxilary Type: Manual, Mfgr. New Process Gear, Inc.

ARMOR:

Hull	Thickness	Angle **
Front, upper	1 in.	60°
Front, lower	1 in.	45°
Sides, upper	1 in.	12°
Sides, lower	3/4 in.	12°
Rear, upper	3/4 in.	0°
Rear, lower	3/4 in.	0°
Top	3/4 in.	0°
Floor, Front	1/2 in.	90°
Floor, Rear	3/8 in.	90°
Turret		
Front	1 in.	25°
Sides	1 in.	25°
Rear	1 in.	90°
Top	1/2 in.	0°
Mantle	1 1/2 in.	curved

ARMAMENT:

Weapon:	Elev/Depr.	Trav.
Main - 75mm M3		
Mount.. T90(M64)	15°/10°	360°
Coaxial MG M1919A4		
Mount.. T90(M64)	15°/10°	360°
Smoke Mortar 2in. M3 (Fixed)	15°	360°
Antiaircraft MG .50 cal.		
M2 HB, Mount.. D80029	78°/20°	360°
Bow MG M191A4		
Mount... D76102	16°/16°	18°

Provision for: 4 -.45 cal. submachine guns M3 (2 in turret & 2 in hull) or 3 -.45 cal. SMG and 1 -.30 cal. carbine M1 and gernade launcher, M8.

NOTES:

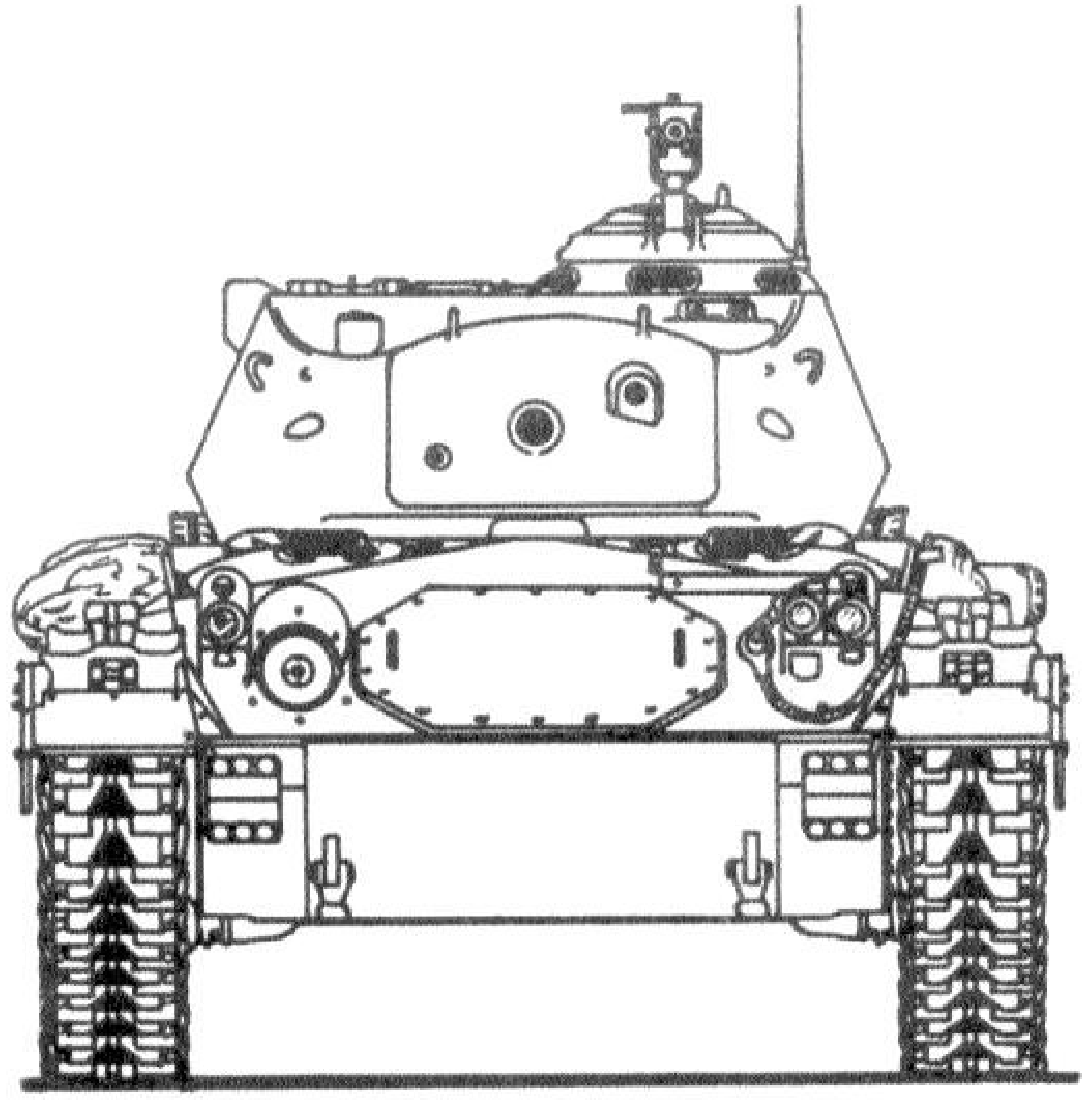
* In the 4 man crew, the assistant driver moves up into the turret and serves as the loader when the vehicle is in combat.

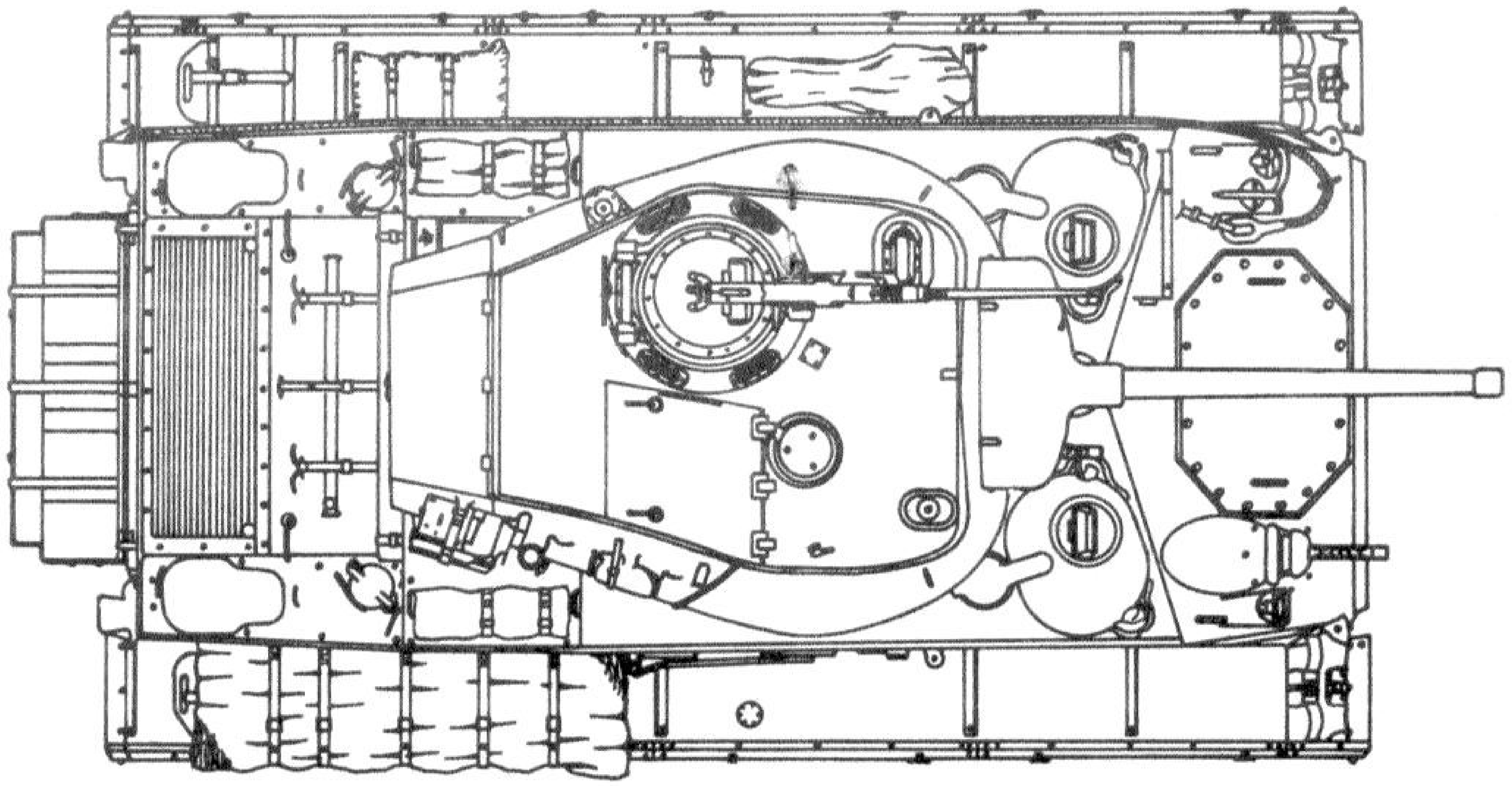
** Angles are from vertical.

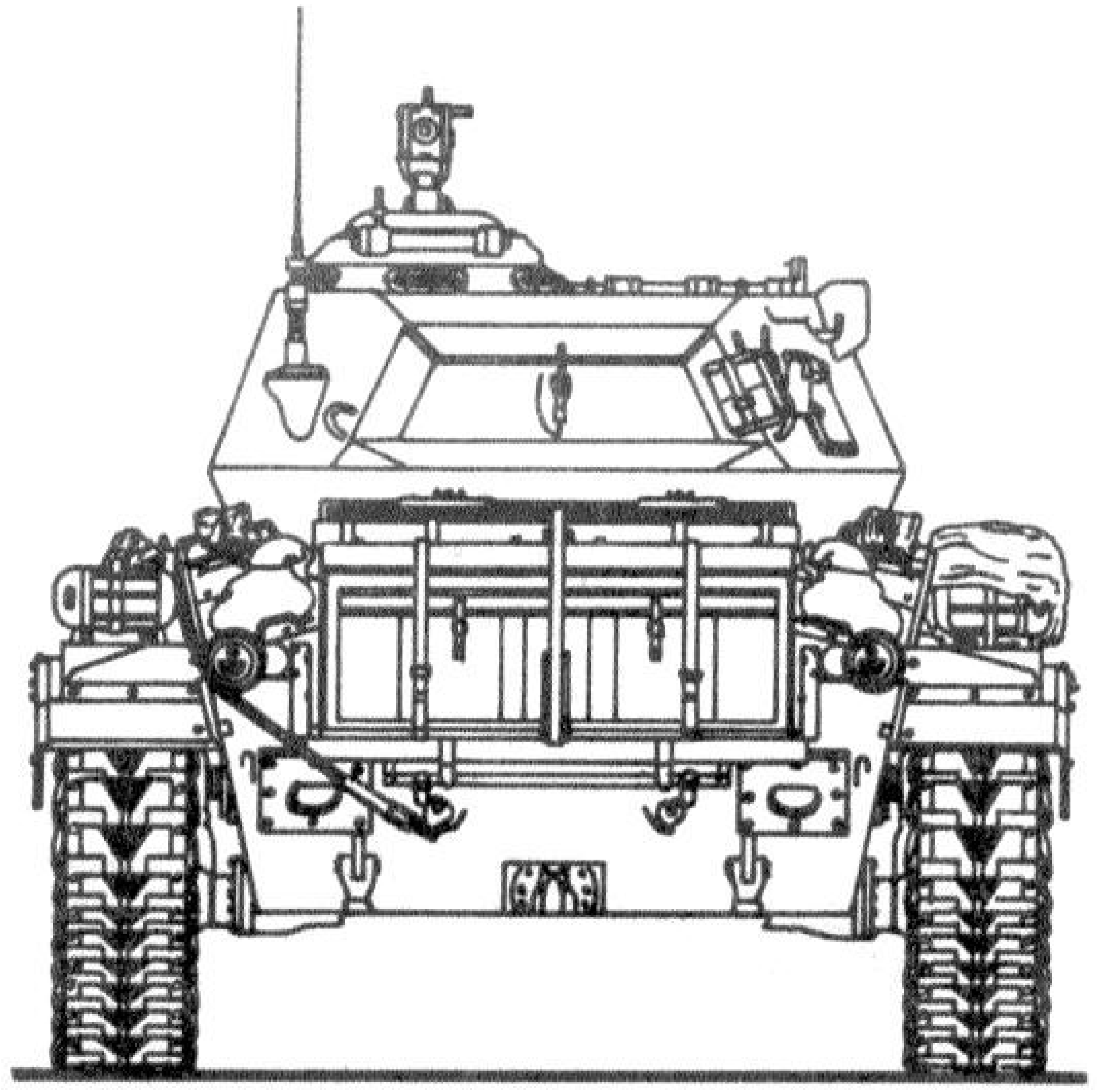
*** The early sources do not agree with the later sources on this point. Perhaps the prototype had only forward gear and no reverse?

**** One link was removed after the tracks began to stretch through use, so there was 74 track shoes per side.

***** A different sprocket was necessary to use the rubber track T85E1.



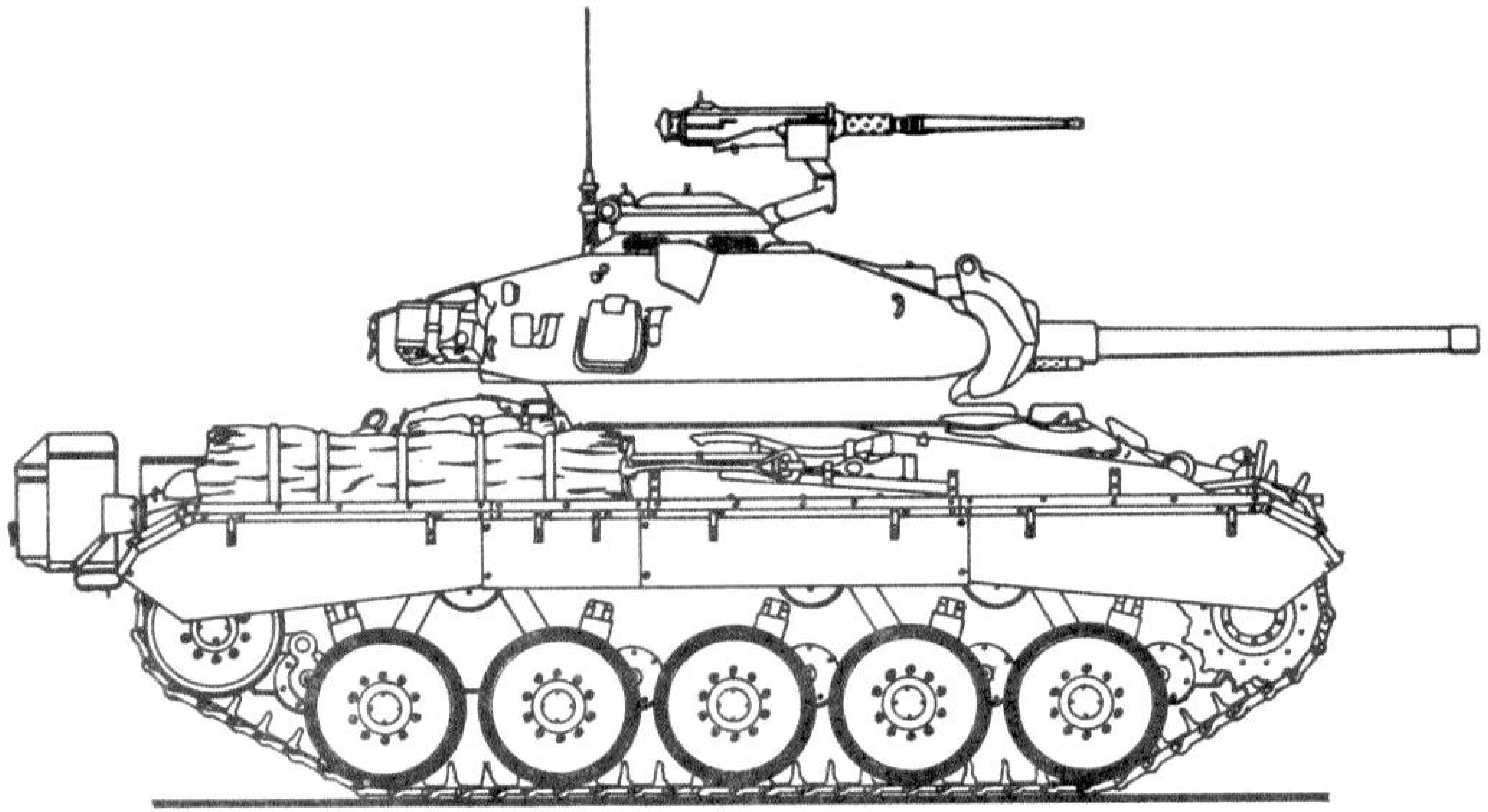


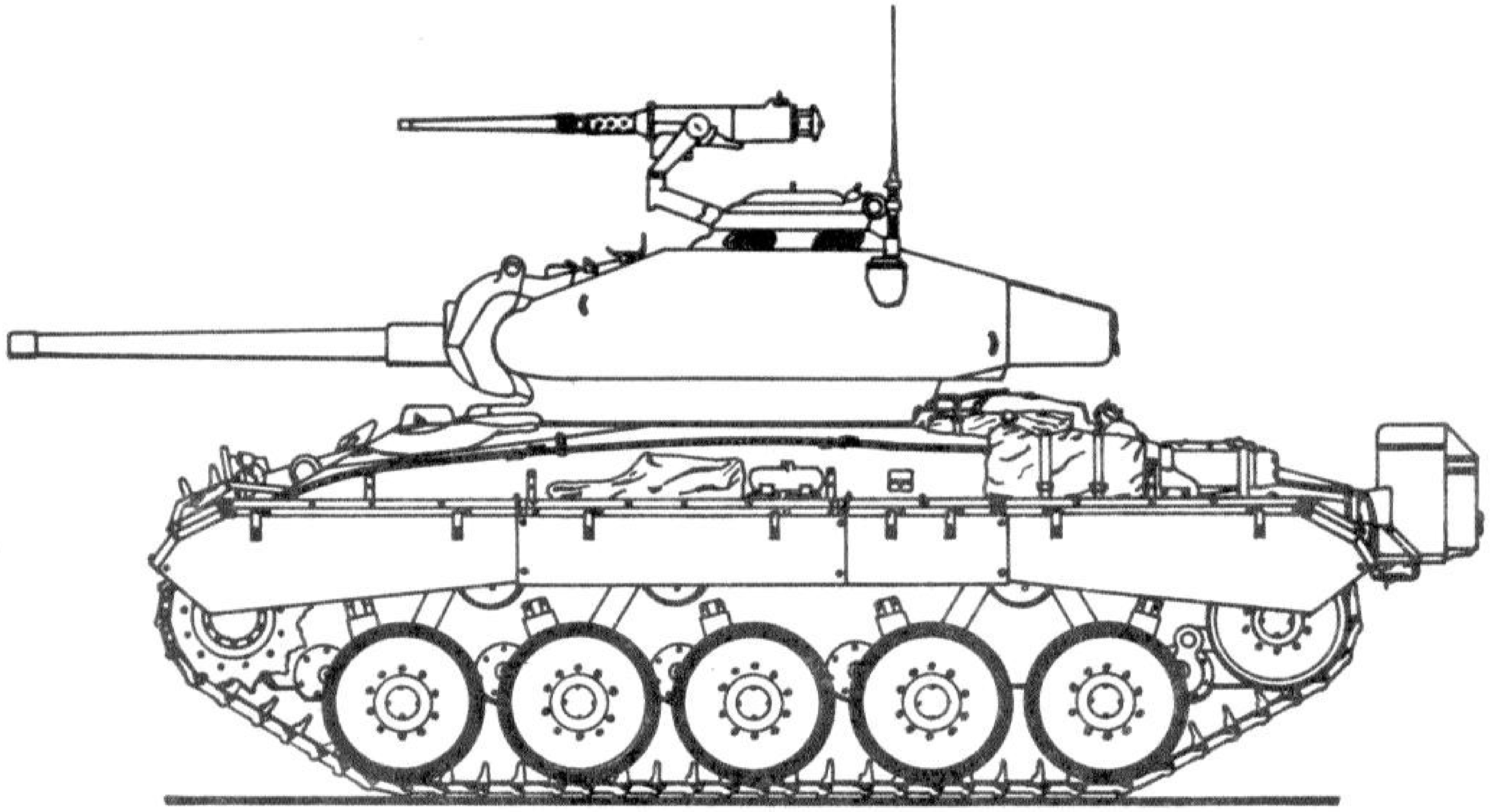


Drawn By: S.R. Cobb

M-24 "CHAFFEE" LIGHT TANK

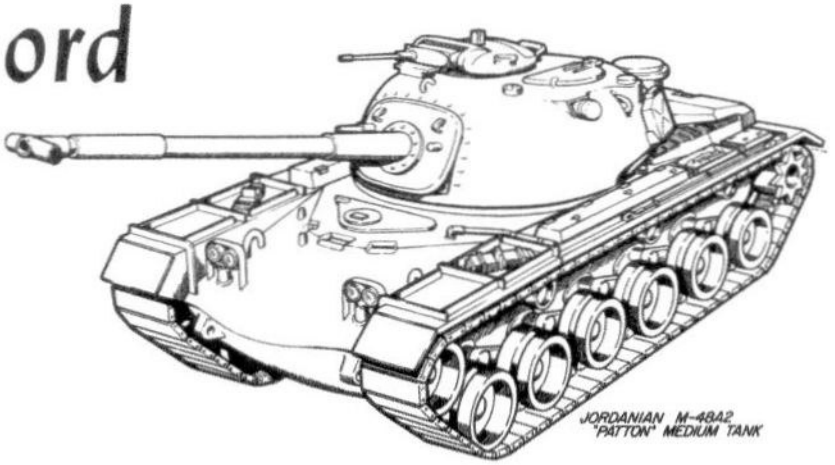
Scale: 1:32





Blunted Sword

Part II.


JORDANIAN M-48A2 "PATTON" MEDIUM TANK

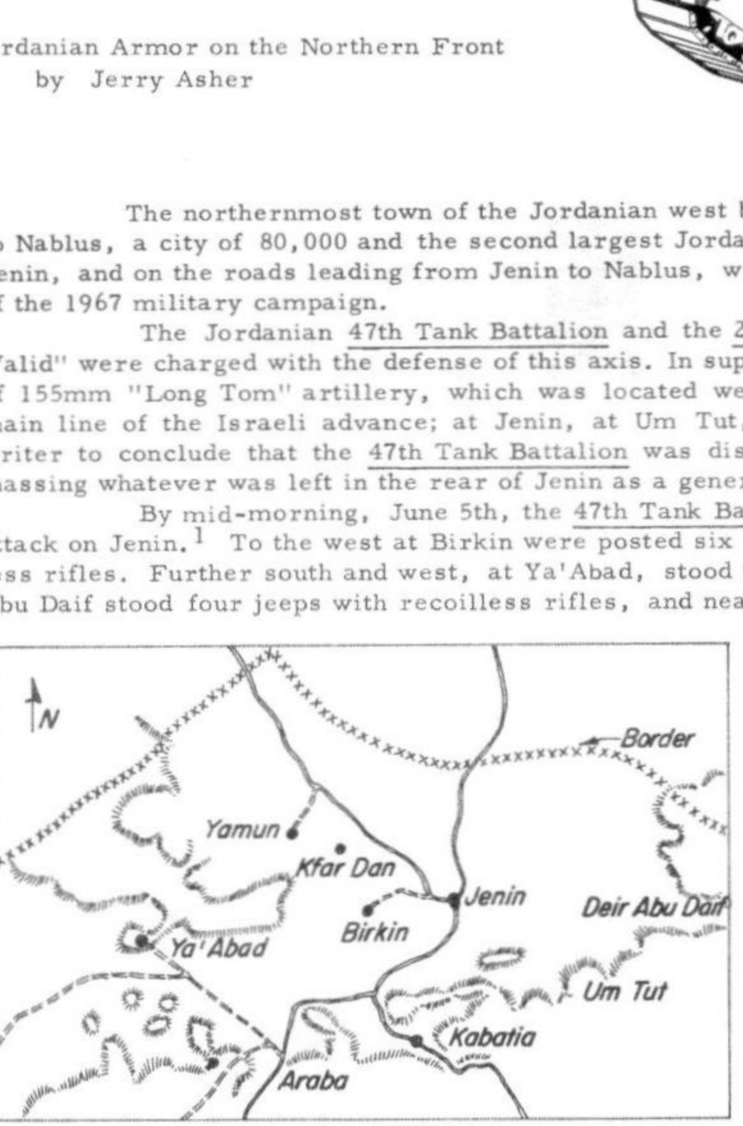
Jordanian Armor on the Northern Front

by Jerry Asher

The northernmost town of the Jordanian west bank is Jenin, which itself serves as guard to Nablus, a city of 80,000 and the second largest Jordanian settlement on the west bank. Around Jenin, and on the roads leading from Jenin to Nablus, were fought the most prolonged tank battles of the 1967 military campaign.

The Jordanian 47th Tank Battalion and the 25th Infantry Brigade - the "Khalid Ibn El Walid" were charged with the defense of this axis. In support of this force was at least one battery of 155mm "Long Tom" artillery, which was located west of Jenin. Reported tank actions on the main line of the Israeli advance; at Jenin, at Um Tut, and at the Araba crossroads, leads this writer to conclude that the 47th Tank Battalion was dispersed to cover all possible axes, while massing whatever was left in the rear of Jenin as a general reserve.

By mid-morning, June 5th, the 47th Tank Battalion had deployed to counter any Israeli attack on Jenin.[1] To the west at Birkin were posted six M-47 "Pattons" and six jeeps with recoilless rifles. Further south and west, at Ya'Abad, stood three M-47 "Pattons". To the east at Deir Abu Daif stood four jeeps with recoilless rifles, and nearby, flanking Um Tut, were posted three more M-47 "Pattons". The remainder of the 47th, between 18 to 28 M-47's were massed slightly to the south and east of Jenin. Jordanian artillery commenced firing on Israeli military installations at approximately 0930 hours, June 5th. By 1400 hours, Jordanian artillery spotters began shifting their fires onto an Israeli Armoured Brigade that was assembling opposite them, northwest of Jenin.

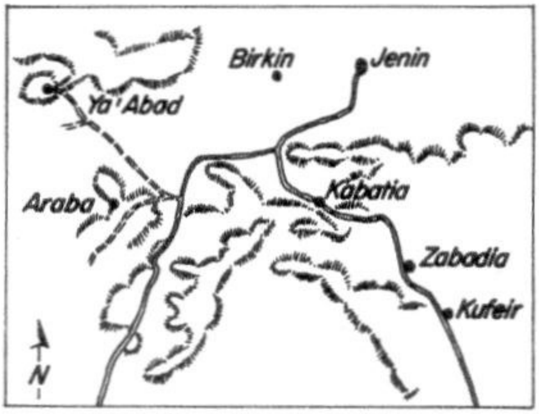


JENIN AND VICINITY

The Israeli Armoured Brigade struck west of Jenin in a two prong drive at 1700 hours on June 5th. The main force (the northern prong), overran the Jordanian artillery positions, and by 1930 hours had penetrated five kilometers south to Yamun and moved eastward two kilometers to Kfar Dan. In seeking to move southeastward to come upon Jenin from the rear, the Israeli's encountered the 47th Tank Battalion's guard of six M-47's and jeep mounted recoilless rifles at Birkin. The rapid night advance caught the Birkin defenders by surprise. In a short fire fight, two M-47's were knocked-out, and the Jordanian crews abandoned the remaining tanks and fled towards Jenin.

Birkin's fall alerted the Jordanian's as to the direction from which the Israeli main thrust would fall. At 0300 hours, June 6th, the Israeli's launched their assault upon Jenin from the rear. Jordanian defenses were in good order: including infantry, well camouflaged anti-tank guns, mines and tank obstacles. The Israeli armor first sought to silence the anti-tank guns, but elements of the 47th Tank Battalion counterattacked the Israeli southern flank. Action was fierce at ranges up to 1200 meters. King Hussein claims that seventeen Israeli Shermans were destroyed in this battle. An Israeli counterattack, on the 47th Tank Battalion's southern flank, with a reinforced platoon of Sherman tanks, led by the Israeli Brigade commander himself, overcame the 47th's spirited defense, and cleared the way for the assault on Jenin proper.

On the outskirts of Jenin, three M-47's still sought to block the Israeli advance. Israeli commentators, however, indicate that these particular Jordanian tanks were poorly sited; being totally exposed on terraces, allowing Israeli gunners to hit them in their soft spots. This defense effort of the 47th Tank Battalion was able to buy Jenin only 20 minutes from the Israeli assault. By 0800 hours, the Israeli's were in Jenin, but they were informed that approximately 60 Jordanian "Pattons" were approaching the town via the Jenin - Tubas road. The Israeli's hurried to get out of the town.



KABATIA AND VICINITY

The southern prong of the Israeli Armoured Brigade was initially held up by the 47th Tank Battalion guard of three M-47's at Ya'Abad. After regrouping, however, the Israeli's, in a fierce engagement, overcame the Jordanian defenses and at dawn, June 6th, took Ya'Abad.

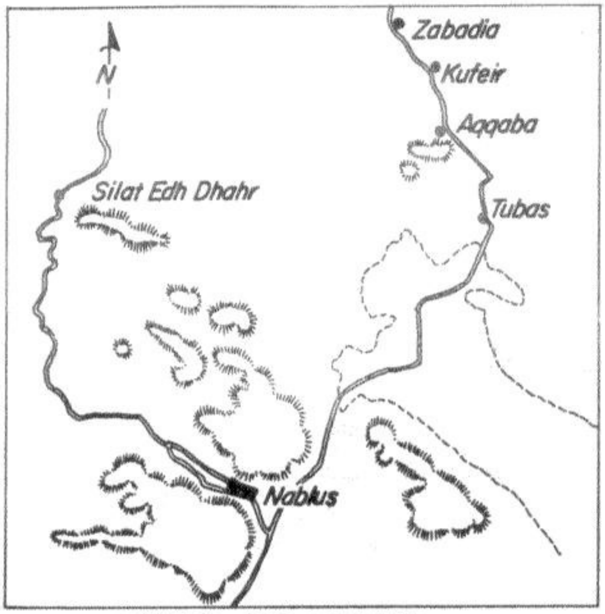
The Jordanian 40th Tank Brigade had been in the vicinity of the Damia Bridge when the war started. At 1300 hours, June 5th, the Brigade was alerted and ordered to proceed to Jericho, but following the attack on Jenin, it was ordered at 2200 hours to return north. King Hussein indicates that the 40th was at that time in the Jenin area.

The 40th Tank Brigade raced northward with it's 4th Tank Battalion (M-48 "Pattons") accompanied by armored infantry, eight self-propelled M-105 guns and a company of armored cars; all taking the Damia - Tubas road. The 40th Tank Brigade's 2nd Tank Battalion (M-48 "Pattons") with similar supporting elements, took the Damia - Nablus road. Thus, the 40th was deploying en-route to block whatever axis the Israeli's sought to use. Along the western (Nablus) axis, no resistance was encountered, and the 2nd Tank Battalion took up defensive positions to the west of Nablus. Along the eastern axis, the 4th Tank Battalion deployed en-route to cover both the Araba and Kabatiya junctions.

An Israeli reconnaissance jeep spotted the enemy column moving through the hills toward the Araba junction, and a concentrated barrage of Israeli self-propelled mortar fire brought this column to a halt with several of it's M-48's hit. In attempting to extricate themselves from the Israeli barrage, this column wandered into a Jordanian-laid mine field, and they were forced to abandon their M-48 tanks.

That part of the 4th Tank Battalion moving on the Kabatiya junction was more successful; they reached the junction and mounted the road to Jenin, where it overlooked the litter of the previous night's battle. At 0830 hours, June 6th, a widely dispersed attack against an Israeli supply position was launched. Once again, Israeli self-propelled mortars were called in and they were able to cover the withdrawal of the Israeli unit. Nonetheless, the 4th Tank Battalion had managed to split the Israeli forces. Exploiting this momentum, a column of M-48's and jeeps moved across the road to hit the Israeli positions near Birkin. A second group of eight M-48's climbed the ridge above Kabatiya and struck the Israeli armor regrouping south of Jenin on it's flank. By 1200 hours, the momentum of the attacking Jordanian "Pattons" had been checked. A report from Israeli crews, whose vehicles had been disabled, which stated that four Jordanian "Pattons" were less than a kilometer from their location and were advancing, led the Israeli's to dispatch an engineering unit in halftracks on a rescue mission. Approximately 24 Jordanian M-48 tanks intervened, closing in to 800 meters and doing considerable damage to the Israeli engineers. At this point, Israeli Shermans made their appearance, and for two hours the opposing forces clashed. By nightfall, the Jordanian armor, after losing 15 "Pattons", had shifted to defensive positions running north-south from the

M47 Medium Tank, 90mm Gun, ex-U.S.



NABLUS AND VICINITY

Kabatiya junction to the Araba junction.

The fate of this new Jordanian defense line, Araba - Kabatiya, had in fact been sealed hours before when the Israeli's committed a second Armoured Brigade (1 battalion of AMX-13's, 1 battalion of Centurions) to the east of Jenin. At 0600 that morning, this brigade crossed the border east of Jenin, moving on a southeast axis to Deir Abu Daif. There, Joardanian jeeps with recoilless rifles forced the Israeli's to bypass their positions and try further south at Um Tut. The defenses at Um Tut;minefield and tank obstacles, flanked by three M-47's of the 47th Tank Battalion, were outflanked at 0900 hours by the Israeli Centurions, and two of the M-47's were knocked-out. In little less than an hour, the Israeli's pushed through Jakalmus and by 1015 hrs. had cut the road Tubas - Kabatiya - Jenin. The 4th Tank Battalion was split, with one group facing the Israeli's at Araba - Kabatiya and a second group facing the Israeli's along a line running Zabadia - Aqqaba, north of Tubas.

After cutting the road, the Israeli brigade rested until 1200 hours. Then it struck south trying to flank the Jordanians; but in a prolonged and widely dispersed action, the Israeli's were stopped. At 1800 hrs., an Israeli air strike hit four of the Jordanian "Pattons", which burned fiercely throughout the night.

Thus, by nightfall, on June 6th, the two Israeli Armoured Brigades and the Jordanian 4th Tank Battalion had been brought to a standstill. Jenin had been secured by yet another Israeli brigade, this of infantry. The western axis of the Nablus road was being held by the 4th Tank Battalion on a line Araba-Kabatiya, while further south, the 2nd Tank Battalion had taken positions at Silat Edh Dhahr and on the western outskirts of Nablus. The eastern axis was being held on a line Zabadia-Aqqaba by units of the 4th Tank Battalion.

King Hussein mentions that he met with the commander of the 40th Tank Brigade, Col. Rakan Anad, on Tuesday afternoon, June 6th, in the field.[2] If this is correct, then either the King drove from Amann through Tubas, risking Israeli air strike, or the headquarters of the 40th was far to the rear of it's main elements, which were valiantly seeking to turn the Israeli advance.

At 0040 hrs., 7 June, the Israeli Armoured Brigade astride the eastern axis struck south, supported by artillery. Evidently the defending unit of the 4th Tank Battalion was taken by surprise by this choice of a night attack, with many of it's crews sleeping on the ground near their tanks. By 0300 hrs, this action ended with the Israeli's in control of the area, and moving on the road to cut the Damia bridge road, and on to Tubas and Nablus. Israeli commentators indicate that 20 to 21 Jordanian "Pattons" were destroyed, either by tank gunnery or by air strikes.

To the west, the Israeli's launched an attack on the Araba-Kabatiya line at 0415 hrs. This engagement did not end until around 0800 hrs, when the remanents of the 4th Tank Battalion sought to retreat towards Tubas, evidently unaware that the second Israeli Armoured Brigade blocked it's path. Reportedly, 25 Jordanian "Pattons" were destroyed. Leo Heinmann, a respected Israeli military correspondent, credits an Israeli 120mm SP Mortar Battalion with a key role in this engagement; claiming that 22 "Pattons" were disabled by a concentrated barrage fired by this unit.[3]

By early morning, June 7th, the 47th Tank Battalion and the 4th Tank Battalion were scattered and disorganized remanents. These two units had stalled the Israeli attack for 18 hours, and they had paid the full price for their valour.

In the defense of Nablus, the Jordanian 2nd Tank Battalion established a blocking force of 20 M-48 "Pattons" on the western outskirts of Nablus. Further up the road, a platoon of tanks had been posted to Silat Edh Dhahr. Evidently, news of the destruction of the 4th Tank Battalion on the eastern axis had not been passed on to this unit; or if passed on, the 2nd failed to act upon it. Israeli armor came barreling down the eastern axis and attacked the 2nd Tank Battalion in the rear catching them by surprise. Action was joined at 1130 hours. The 2nd was in a very bad spot. One Israeli company of AMX-13 tanks had taken the high ground to the north and flanked them, while in-

- Continued on Page 34 -

THE BARON'S BOOKSHELF

With books for *your* bookshelf

Book Reviews by Jim Garrison

Book Review: The Jeep by The Olyslager Auto Library
(F. Warne & Company, New York, N.Y., 1971, $4.95)

The Jeep, the first in a new series of books from the Olyslager organization, and edited by Bart H. Vanderveen, is a little book that tackled a big subject. In the 64 pages of this publication, over one hundred and thirty photographs and drawings are used to take the reader from the first prototype Jeep to modern US Army Jeeps of today. Along with military versions, the postwar civilian models of this popular vehicle are also presented between the covers of this book.

The most interesting feature of this book is the coverage given to the many experimental military projects based on the Jeep. Full- and half-track Jeeps, Jeeps with "floating wheels" and Jeeps that used air-bag tires, and many other experimental vehicles are given very good coverage through the use of numerous rare photographs. Pertinent data is provided for all vehicles covered in the text.

This reviewer's biggest criticism of this book is that each conversion or experiment is given treatment equal to the various production vehicles. Well over 600,000 Jeeps were produced during World War II., and a few more photographs of Jeeps in the field would have improved the book greatly. I must say, though, that the photographs chosen for the book are excellent. Modelers will find that this book will be a very handy reference on this vehicle. The book can be purchased for $4.95 wherever military books are sold.

Book Review: The Observer's Fighting Vehicle Directory by Bart H. Vanderveen
(F. Warne & Company, New York, N.Y., 1969, $5.95)

Don't let the title of this book fool you. While Bart H. Vanderveen named it "The Observer's Fighting Vehicle Directory", AFV's are not the subject of the book. While a few tanks are mentioned and a few photographs provided, "soft-skins" are given the major amount of coverage in the text. But, don't let this fact keep you away from buying the book. There are enough books that cover armored vehicles, and this book is a real gem.

The book is just as the title states, a "directory". Over three hundred U.S. vehicles are covered, and Mr. Vanderveen included material on the vehicles of all major belligerents in the second World War. It might seem impossible to include material on all the bodies fitted to the different trucks, but in this book, not many versions were missed.

I only wish that more data had been included for each vehicle, but that would be almost impossible for a book of this type and size. I must say that I have not been able to find a "soft-skin" that was used in service that is not included in this text.

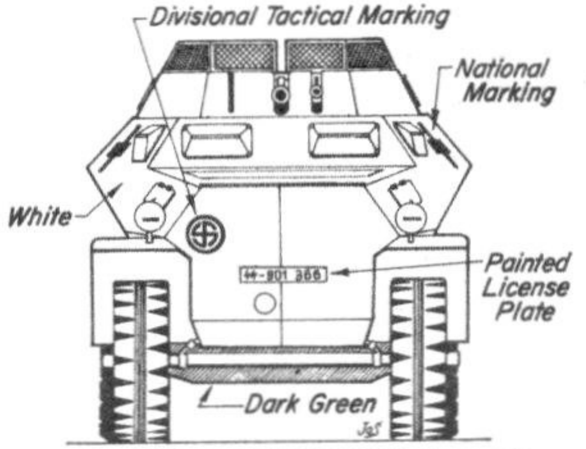
Since this book is almost two years old, I would hope that each AFV-G2 reader would have a copy in their library by now. If you don't have one, get it! The book retails for $5.95 and it will become a basic reference for that hard to find data on "soft-skins".

To have a book reviewed in this section, a sample or review copy should be sent to Baron Publishing Company, P.O. Box 293, La Puente, CA 91747, Attn: Book Review. Be sure to enclose a business address to where correspondence may be directed.

Color 'n Camouflage

The German Sd. Kfz. 250/9 Light Reconnaissance Halftrack on the Eastern Front, Winter 1943-44

by Jim Steuard

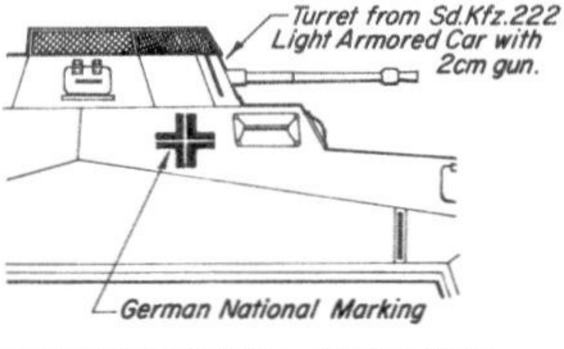


Front View – Sd.Kfz.250/9 Armored Halftrack Reconnaissance Vehicle

In the winter of 1943-44, German reinforcements finally arrived on the Northern sector of the Russian front. Specifically, these reinforcements consisted of the III. (germanisches) SS-Panzer-Korps, composed of the 11. SS-Freiwilligen-Panzer-Grenadier-Division "Nordland" and the 4. SS-Freiwilligen-Panzer-Grenadier-Brigade "Nederland". The subject vehicle of this month's article is a Sd. Kfz. 250/9 light armored halftrack of the 2. Kompanie of SS-Panzer-Aufklärungs-Abteilung 11. (or the 11th SS Armored Reconnaissance Battalion), which arrived on the cold snowy northern front on 16 December 1943. SS-Pz. Aufkl. Abt. 11 consisted of five companies; the 1. Kompanie was an armored car unit (with Sd. Kfz. 234 8-wheeled armored cars), the 2. Kompanie was a reconn-company, with the light Sd. Kfz. 250/9 halftracks (which were officially classed as armored cars), the 3. and 4. Kompanien were armored infantry units (equipped with the 3-ton Sd. Kfz. 251/1 armored personnel carriers), and the 5. Kompanie was the heavy weapons (or "schwere") unit, with AT and cannon platoons.

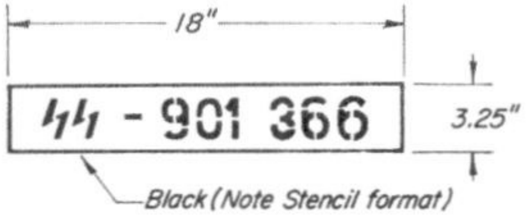
The Sd. Kfz. 250/9 light reconnaissance halftrack was a modification of the standard 1-ton armored halftrack, with the installation of the turret of the 4-wheel armored car (Sd. Kfz. 222) onto the covered top of the halftrack; this gave the vehicle it's firepower: a 2cm cannon and a 7.9mm light machine gun. Our particular vehicle arrived on the northern front by train, still painted in an overall shade of dark green. It was overpainted on arrival, with several coats of "off-white" camouflage paint, to better conceal the vehicle in the snow. The paint chip (opposite) shows that "off-white" paint which was applied to all upper surfaces. The lower areas of the vehicle (around the tracks and wheels) were left in the earlier dark green finish as shown in the drawings.

German national identity crosses were applied to the sides of the armored halftrack, as shown in the partial side view, just behind the side vision ports. These crosses were approximately 12-inches square and were painted black, with a thin white cross through the center, as shown. These crosses were the sole markings on the vehicle sides.



Partial Right Side View — Sd.Kfz.250/9 of 2./ᛋᛋ-Panzer-Aufklarungs-Abt. II.

Stenciled license plates were painted on the front and rear of the armored hull of our Sd. Kfz. 250/9. These front and rear license plates were identical; being 18-inches long and 3-1/4-inches high, and they differed from the standard Wehrmacht style of painted licenses by being stenciled, in black paint on the camouflage white, centered on the vehicle's sloping hull front, and on the right side of the rear hull plates, next to the rear door, as shown in the front and rear view drawings.



License Plate – Sd.Kfz.250/9

The tactical marking for the 11. SS-Freiwilligen-Panzer-Grenadier-Division consisted of a vertical swastika with the outer parts of the legs forming a circle. This insignia, called a "Sonnenrad" (or Sun Wheel) was borrowed from the 5.SS-Panzer-Division "Wiking" (the Commanding General of the III. SS-Pz. Korps, SS-Obergruppenführer Felix Steiner, was the former Division Commander of "Wiking"). To differentiate from the tactical marking of the 5. SS-Panzer-Division, the "Sonnenrad" was circled by a 7-inch diameter ring. This tactical marking was painted on our Sd. Kfz. 250/9 in black, on both front and rear, as indicated in the front and rear drawings.

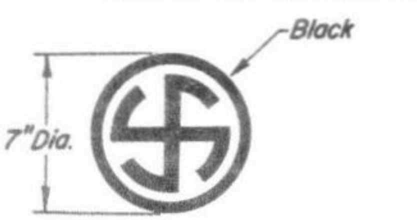
The only other remaining marking on the light reconnaissance halftracks of 2./SS-Pz. Aufkl. Abt. 11 was a stenciled Small Unit Tactical Marking, which identified the type of unit that the vehicle belonged to. This marking appeared, stenciled in black paint, on the upper part of the rear door of the vehicle. The tactical marking was the standard Wehrmacht tactical insignia for a halftrack reconnaissance company: it consisted of an 8-inch long by 6-inch high rectangle divided into two quadrants. A small pennant appeared at the top of the rectangle, and a painted capital letter "A" was in the upper left corner of the marking (in the upper quadrant), as shown. Below the rectangle, the degree of mobility of the unit was indicated; in this case, a small circle and "track" to show the halftrack status of the company. The numerical designation of the company (a 3-inch high number "2") appeared on the right side of the tactical marking. This stenciled insignia appeared only on the vehicle's rear.

CAMOUFLAGE
OFF-WHITE

⬜

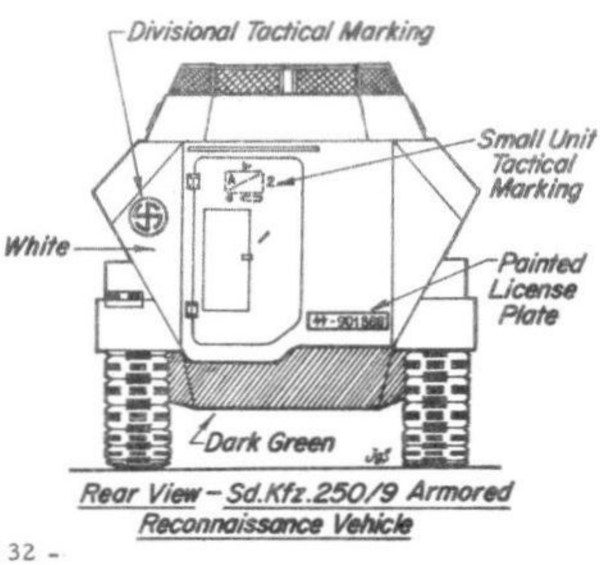
60 pts Floquil RR11 Reefer White
1 pt Floquil RR17 Black

Less than a month after their arrival on the "Leningrad Front", 2./SS-Pz. Aufkl. Abt. 11 was in action against the Russian enemy. On 14 January 1944, the Soviet Winter Offensive was launched west from Leningrad and south from the Oranienbaum salient, which had been created after a successful Soviet amphibious operation. The vicious Soviet attack was launched against the weakest part of the German defenses; the sector defended by the 9. and 10. Luftwaffe-Feld-Divisionen (units composed of surplus Luftwaffe mechanics and ground personnel). The SS-Reconnaissance Battalion was headquartered at Kljassina-Bor, with the assigned mission to support the Luftwaffe divisions, and the units were immediately ordered forward to provide armored support for the hard-pressed air force units, who were without heavy weapons and anti-tank guns. The 2. Kompanie, with it's mobile light armored halftracks, moved forward to the vicinity of the small village of Kapyloschke-Djatlezy, where they encountered retreating and panic-stricken men wearing the gray-blue of the German air force. The SS-Armored Reconnaissance Company prepared an immediate counterattack on the village which had been a Luftwaffe Battalion headquarters. This attack was successful, and the company was soon reorganizing within the village, for another Soviet attack was soon expected. Within minutes, Soviet 122mm mortar fire began falling into the German held village. One salvo struck near several armored halftracks, and numerous personnel were wounded, including three of the SS platoon leaders. Several of the vehicles were damaged, and the company was forced to abandon the town in the face of the heavy Soviet mortar fire.



Tactical Marking - 11.ᛋᛋ-Freiwilligen Panzer-Grenadier-Division "Nordland"

As the 2. Kompanie withdrew southwest from the village down the road, SS-Obersturmführer (or 1st Lieutenant) Heckmüller, the Company Commander, was occupied with plans for action. As the unit approached the tree line, which crossed the road, the company commander ordered his vehicles to form a defense line just inside the belt of pine trees. As the vehicles halted, the Company quickly organized an ambush to repulse the advancing Russian infantry. The company commander and the first sergeant, SS-Unterscharführer Poller, ran from vehicle to vehicle to coordinate the attack. Within minutes, Russian

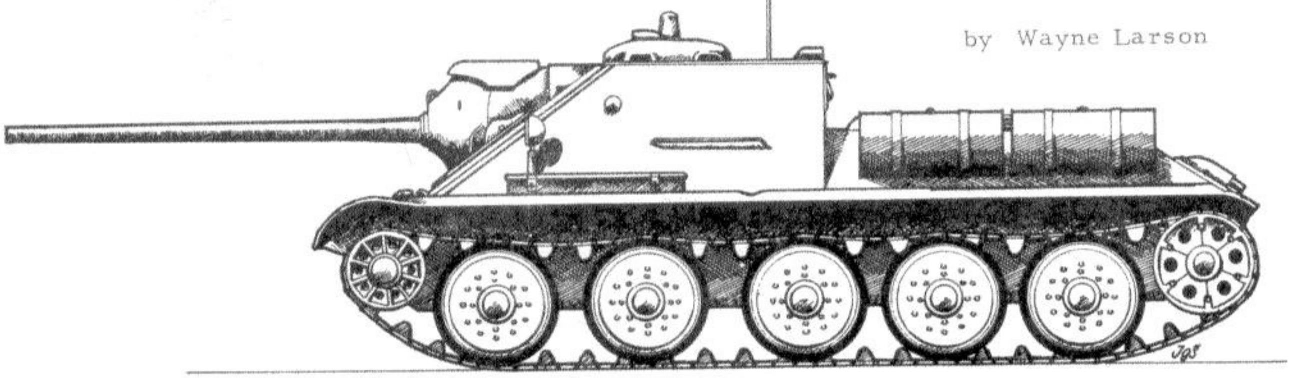


Rear View - Sd.Kfz.250/9 Armored Reconnaissance Vehicle

- Continued on Page 32 -

When the Wheat Ripened

by Wayne Larson



In August 1944, the 19th Tank Corps and the 26th Motorized Infantry Brigade of the Soviet Army were moving towards Sauliai, in Lithuania, as part of a Soviet assault group that had been forcing the Germans back for two days, leaving their rear supply units far behind, and running short of fuel and ammunition. By this time, the Germans had partially recovered from the Soviet attack and were getting tank reinforcements from Eastern Prussia. The Soviet Army commander ordered the 19th Tank Corps to close a dangerous gap in their lines near a village called Suostai. A Company of four SAU-85 (Soviet designation for the SU-85 Tank Destroyer) Self-propelled Guns was sent to seal the gap (four SAU-85's were all that the Company had left, after earlier combat).

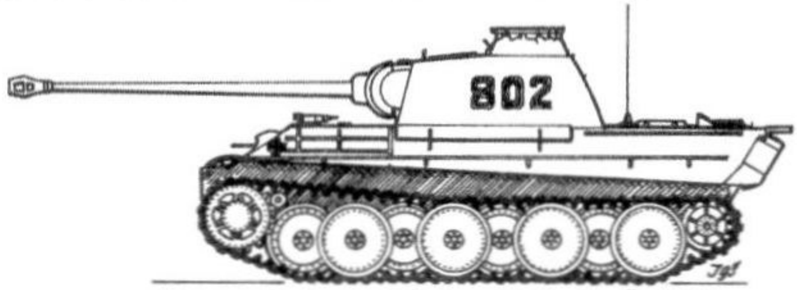
The four SAU-85 SP Guns arrived in the nick of time to close the gap, and they were rapidly camouflaged in the ripening wheat that was more than shoulder height. The Soviet crewmen carefully hid each vehicle behind the yellow-brown stalks of wheat, while other crewmen covered the tracks of the heavy assault guns, and straightened-out the bent wheat stalks, so that all of the Russian vehicles were invisible to any advancing enemy. One of the SAU-85's, commanded by Lieutenant Pyotr Galin, the Company Commander was hidden on the outskirts of the small village in a barn, and the crew had prepared a reserve position in a clearing, near the adjacent birch grove.

The next morning, advancing German tanks were sighted, raising dust clouds on the horizon. The enemy armoured group consisted of eleven Panther tanks and one Tiger tank; they were advancing in single file, as though they had drawn no lessons from earlier combat. It seemed as though the Germans had little idea of the location of any Soviet troops. Lieutenant P. Galin ordered his company to let the enemy approach closer, for they had very few anti-tank shells left to counter such a large number of enemy tanks, and at close range every shell would be more effective.

As the Soviet tank destroyers distributed their targets and waited, the German tanks continued to move towards the concealed SAU-85's. When the German vehicles were within 300 meters of the self-propelled gun positions, the Soviet company opened fire. Four 85mm barrels spat flame and the yellow-brown wheat rippled in front of each vehicle as the muzzle blast from these powerful weapons was felt. Three German Panther tanks stopped dead in their tracks, and as they started to burn, the turrets of the other German tanks turned rapidly, seeking the deadly concealed ambush. But all the Germans could see was the ripe wheat swaying the the soft breeze. The Soviet expert camouflage exercise had not been in vain. The second salvo of Soviet shells set two more of the Panther tanks on fire, but their muzzle blast had now been seen. The rest of the German vehicles veered and then headed straight for the concealed self-propelled guns. Lieutenant Vasily Sanchirov's self-propelled gun was hit by German fire and set afire. But it continued firing at the advancing enemy. Lieutenant P. Galin ordered Sanchirov's men to abandon their burning tank destroyer as the Germans threatened to overrun their position; but Lt. Sanchirov refused, reporting that he still had some shells, and that he was opening fire at a German tank on the left flank. As the smoke shrouded SAU-85 fired, another Panther staggered under the shock of the impacting anti-tank shell, but at the same moment, Lt. Sanchirov's burning tank destroyer exploded.

Lieutenant Pyotr Galin's crew, seeing the explosion, fired their last anti-tank rounds in hate and anger at the still advancing enemy tanks. The driver of the powerful SAU-85 yelled that he was going to ram the closest advancing enemy tank. The Self-propelled Gun rolled out of it's camouflaged position and smashed into the left side of an enemy Panther. As the startled German crew scrambled out of their smashed tank, they were shot down by the enraged Russian gun crew witn their Tokarev pistols.

In the face of this stiff opposition, the remaining German tanks began to retreat, firing a few last high explosive shells at the ambush position as they backed out of effective range. As the German unit withdrew to cover, the Soviet SAU-85 Company immediately began to prepare for the renewed German attack, which could be expected within the hour. The Russian vehicles quickly changed to new camouflaged positions, so that the German tankers could not observe them; the Soviet crewmen were busy covering tracks and hiding the vehicles again, behind the shimmering wheat. The three remaining SAU-85 crews counted and redistributed the remaining ammunition, and discovered that they were down to only three anti-tank shells per tank destroyer. These few shells were carefully cleaned and made ready.



German Panzerkampfwagen V. „Panther", 1944

Half an hour later, the reinforced German unit attacked again; this time maneuvering and changing their formation as they advanced towards the suspected ambush position. Moving in three columns, the German tanks fired high explosive shells at every suspicious mound of earth and suspected enemy position. The three Soviet gun crews again let the enemy tanks approach closer, and with their last nine anti-tank shells hit and destroyed nine German tanks. The crew of the tenth and last German tank, a Tiger, took to their heels, abandoning their tank on the battlefield. They were chased rearward by machine gun bullets as they fled in panic. A driver from one of the three remaining SAU-85's climbed into the huge Tiger tank, which was still running, and he drove the enemy vehicle into a grove of nearby birch trees, where it could be examined by the men of the Soviet unit. The Tiger tank was in perfect condition, and there were plenty of the powerful 88mm shells in the tank. These shells were quickly put to good effect on the retreating Germans.

The Soviet SAU-85 Company was soon reinforced and resupplied with fuel and ammunition, and an hour after the previous engagement, the Soviet unit was again combat ready, although still deficient in vehicles and men. Within a day, replacement SAU-85's and crewmen arrived from the reserves of the 19th Tank Corps, to bolster Lieutenant Galin's company and bring it back to full strength.

The Golden Star; the medal awarded to all Heroes of the Soviet Union.

For the above described successful battle, and for destroying seventeen German Panther tanks and capturing one German Tiger tank intact, the Soviet government decorated Lieutenant Vasily Sanchirov (posthumously) and Lieutenant Pytor Galin with the title of "Hero of the Soviet Union", the highest decoration that could be awarded to any Soviet soldier. The simple medal, with its gold star suspended from a crimson ribbon, that was worn by all recipients of the title looks plain when compared with other decorations from other countries, but it is a strong indicator of the heroic qualities, represented by Lieutenants Sanchirov and Galin.

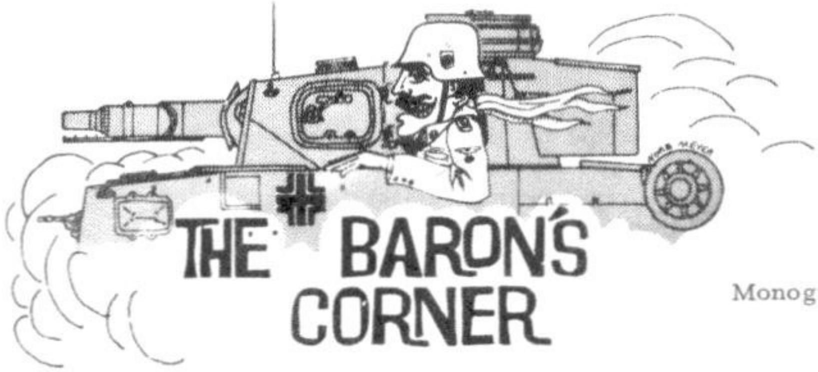
Editor's Note: The above article is based largely upon an article that appeared in Soviet Military Review.

Armor G-2 (Continued from Page 15)

SYRIA - Armed Forces: 70,500 men

150	T-34/85 Medium Tanks (ex-Soviet)
300	T-54 or T-55 Medium Tanks (ex-Soviet)
500	BTR-152 Armored Personnel Carriers (ex-Soviet)
40	SU-100 Self-propelled Guns (ex-Soviet)
20	SU-152 Self-propelled Guns (ex-Soviet)

SU-100 Tank Destroyer with 100mm Gun (ex-Soviet)

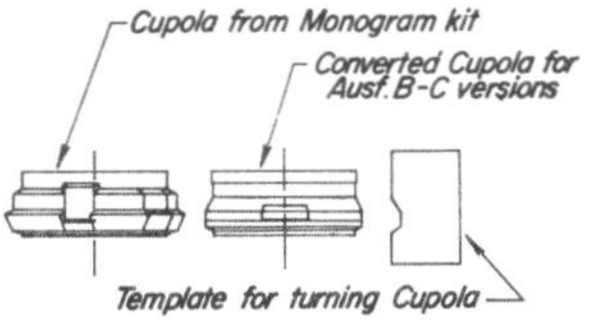


THE BARON'S CORNER

Monogram Panzer IV. Cupola Conversions

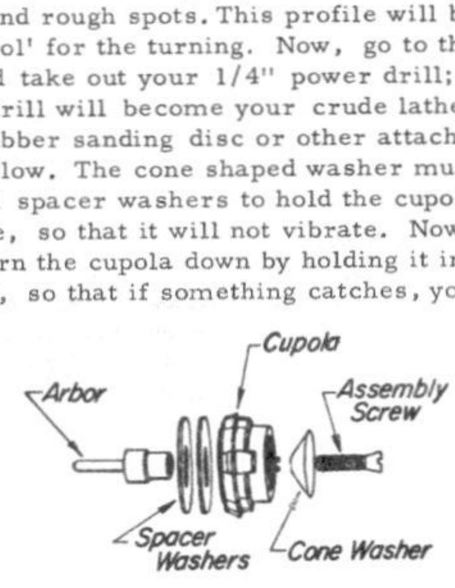
by Norb Meyer

This month, as promised, we are going to cover a method of constructing the early version of the Panzer IV. cupola. This earlier version was fitted on the 'B' thru 'D' models of the tank and replaced the drum shaped cupola of the Ausführung A. Some of the main features of the improved cupola were an increase in armor thickness and the addition of a slightly wedge shaped ring around the bottom portion of the cupola. There was also fitted a semi-circular ring on the forward portion of the cupola just above the wedge shaped ring.


Cupola from Monogram kit
Converted Cupola for Ausf. B-C versions
Template for turning Cupola

Modeling Profiles, Monogram Panzer IV. Cupolas
Scale: 1:32

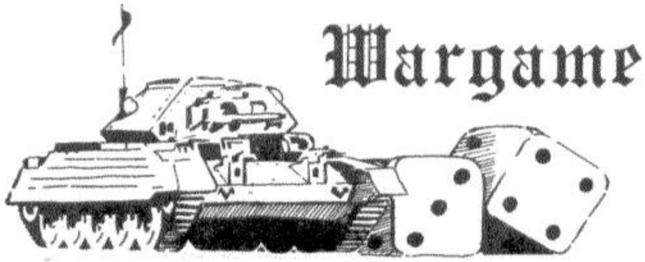
The best method to manufacture the 'new' cupola is to re-turn the cupola furnished in the kit. If you happen to have a lathe in your home, then the job is a rather simple one; otherwise, it becomes a more complicated job. First, obtain a piece of strip metal, either in nickel or in brass (available at your local hobby store) in .06 thickness. Using a metal hacksaw and a file and some patience, cut out a template or profile of the early cupola, as shown at left. After cutting, use a file and some emery paper to remove all of the burrs and rough spots. This profile will be our 'cutting tool' for the turning. Now, go to the tool chest and take out your 1/4" power drill; if you don't have one, borrow your neighbor's. With care, this drill will become your crude lathe! Most drill kits have an arbor arrangement to be used with a rubber sanding disc or other attachment; this is the tool we can use to 'jig' the cupola, as shown below. The cone shaped washer must face inward to hold the cupola tightly. You may need several spacer washers to hold the cupola snugly. Fasten the profile or template of metal firmly in a vise, so that it will not vibrate. Now, with the arbor assembly tightly in the drill, you can carefully turn the cupola down by holding it into the clamped metal template. Take your time, and cut slowly, so that if something catches, you will have time to react. Also, plastic heats quickly and if you are not careful, you will end up with a shapeless blob of plastic instead of the finished cupola. Actually, not much trimming is necessary. Finish off the turning job with fine flint paper.



Arbor Assembly for Cupola Turning

Once the basic shape of the cupola is completed, the details can be added. First, and most important, are the openings provided for the vision ports. These can be cut with your X-acto knife, using the residual markings from the original cupola. Again, take your time; your effort will be worth it when you see the results. The vertical slots should be rectangular with rounded edges. The next detail is the armored half-ring in the front of the cupola; for this you can use the half-ring provided in the kit that is intended to go behind the cupola (in the late version). It will be necessary to heat this piece in hot water and bend it to conform to the cupola. This piece should go about 2/3rds of the way around the cupola, so cut off the excess before cementing it in place. By now, you have done all of the hard work; the easiest part is to come. The Panzer IV., Ausf. H was the first version to have the single piece hatch, and all early versions had the two piece hatch. Use your circle template and scriber to cut out two circles of .015 sheet plastic, the largest to just fit inside the cupola. After smoothing the circles, cut them in half to make the two pieces. Cement the smaller semi-circles inside of the larger ones to form the lip, and the hatches are complete; they may be glued in either the open or closed position. Well that's about it for this month. Good modeling............

Wargame Review



Sand Table Terrain

by Gary Gygax

Although it is not necessary to use Life-Like Grass, it makes the table appear so much better that the small additional cost and effort are well spent. A large box will be enough to liberally cover a 6'x10' table. Use one of the "shaker" jars to sprinkle green over every inch of the surface, except the freshly plowed fields. The latter should be covered with Life-Like Earth, as should be those roads which are to be classed as "dirt or gravel". Don't worry about spots that are not as green as you think they should be; a final touch-up will take care of them after everything else has been placed.

Trees come next. As the MiniTank pines are the least expensive, most of your forests will be probably be coniferous. However, a few of the Life-Like Hardwoods seem to make the plastic pines look better. If you have lots of the Life-Like hardwoods you can make a corpse or two with them, but if they are scarce reserve the hardwoods for use around buildings. As you place the tree bury its base firmly in the sand. Plant them a few at a time, outlining the wooded areas. It is always possible to go back and thicken up the forest after you are sure you have enough trees to go around. Naturally, the taller trees look best in the center. Short trees are also useful in making hedgerows and thickets, besides putting them on the edges of the wooded areas.

You may want to keep the woods neat, as in Germany, but usually they are cluttered with brush and dead wood. Just take a handful of lichen and twigs and shake them over the trees. This will give the desired effect with a minimum of rearranging. Lichen bushes look well along rivers and rail embankments, and beside secondary roads. A scattering of small pieces can be added to open ground. Great clumps look wonderful in gullies and ravines.

There are many HO scale buildings available. Some additions will undoubtedly be necessary as you progress, like walls around buildings, ruined houses, wire entanglements, pill boxes, etc., but that's up to you. After various things have been placed, use sprinkles of earth to make paths to dwellings. While the shaker is in hand, you might as well add the finishing layer to your dirt roads, plowed fields, and maybe the railroad bed. Sift the black dirt over the width of the main roads so that they are easily distinguished as such. Then, it's back to the grass again. Fill in any spots where the sand shows through too much, along the shoulders of roads, fertile pastures, etc. Note that the material will fall away from steep slopes and appear to take on different shades in different areas. This is just the desired effect. If a little gets on the rivers it can be either gently blown away or left there as plant growth in a sluggish stream.

Shell holes or bomb craters are made last. Poke your finger into the sand, and give it a stir. Some grains will flip out and the edges of the hole will push up. It's quite realistic.

For spring and autumn terrain merely use less grass and appropriately colored hardwoods and lichen. Winter isn't much more trouble. Of course, pines are fine for any season. Branched twigs serve as excellent hardwoods sans leaves. Lightly sift a very fine flour over the table instead of the green grass. It will look almost as good as the genuine article that so few of us like in reality. As AFV's and troops are moved over across the surface of the "snow" they will leave obvious tracks--more so than when moved over the grass. In any case the table top looks like a battle field after you have fought a game, for it becomes chewed up, trampled down and defoliated.

For those of you who employ hidden objects in your miniatures game, I suggest that they be left off the board until they are detected by the enemy. At that time put them where they belong, and if the terrain is disturbed touch it up again with the handy shakers.

Taking photos of these kinds of battles is most enjoyable. If you are thorough when you prepare the sand table, and carefully select your pictures, it is almost certain that some of the shots will look so real that you can present them as aerial photographs to your non-wargaming friends. Besides, you'll have documented evidence of just how badly you defeated your opponents.

As a last note, don't worry about all of the stuff you sprinkle on top of your sand spoiling it. The grass will eventually darken it slightly, and give it a greenish tinge, but occational winter battles will lighten it again. If a desert game is desired, all you need are a couple more buckets of dry sand to spread and heap around, and it's North Africa all over again.

British Armoured Division, Type 1939

by William E. Platz

During the late 1930's, the Germans were not the only nation experimenting with armored formations. Then current British doctrine called for a dual role for the employment of armor, in which on the one hand, heavily armored "I" tanks organized into independent tank brigades, were designed for infantry support and assaults; and, on the other hand, the "Light" and "Cruiser" tanks of the Armoured Divisions were deigned for mobile warfare and exploitation. In 1938, a "Mobile Division" was formed in the United Kingdom and a short time later a second was organized in Egypt. These were to become the 1st and 7th Armoured Divisions. Experimentation continued and it was soon decided that a change in organization was needed.

In May 1939, the Army Council issued a new organization for the armoured divisions (30/RA C/Sd.7 of 25 May 1939). The new system streamlined the division and reduced the number of brigades from 3 to 2. The result was a balanced formation designed for the division's primary mission, exploitation of the infantry's success. In the new plan (shown opposite), there would be a Light Armoured Brigade, made up principally of the recently mechanized Cavalry and Yeomanry Regiments; a Heavy Armoured Brigade, with Cruiser tanks from the Battalions of the Royal Tank Regiment; and a Support Group, with infantry, artillery, and engineers. Each component of the division performed separate functions.

The Light Armoured Brigade was the successor of the "Cavalry Brigades" of the Mobile Divisions. It was equipped with the Mk. VI Light Tank. Although the War Establishment allowed for 2 Squadrons of light tanks and 1 of light cruiser tanks in each of the 3 Regiments (1/1931/5C/1w of 4 October 1939), in actual practice, the units operated with only light tanks or with a "borrowed" unit of cruisers from one of the Heavy Brigade's battalions. In action, the Brigade was to provide reconnaissance for the division and support the Heavy Brigade during the mobile battle.

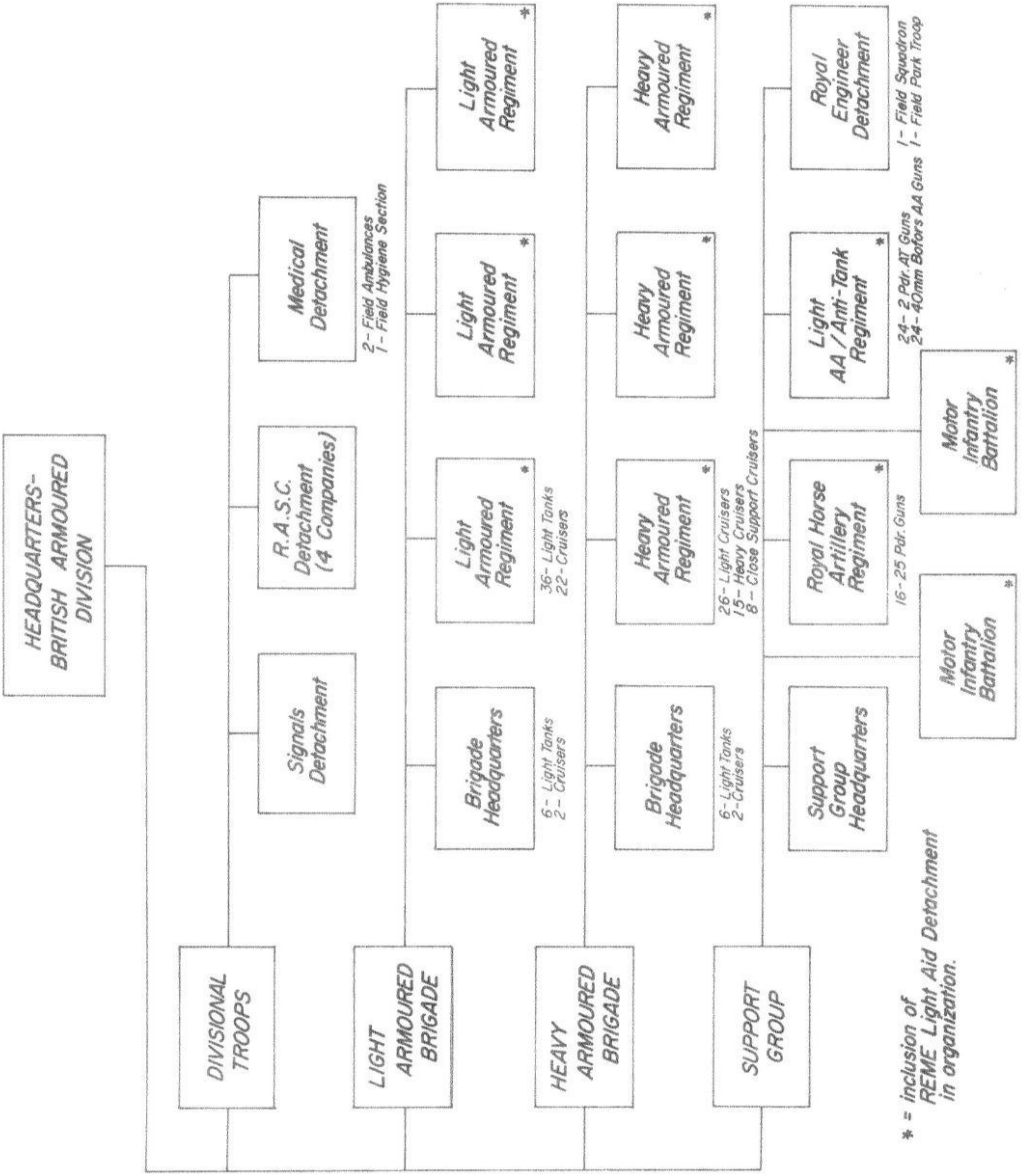
The Heavy Armoured Brigade contained the bulk of the division's armoured firepower. With its 157 Cruiser tanks, the Brigade was expected to bear the brunt of the armored battle. It was organized with three battalions of the Royal Tank Regiment (RTR). A RTR Battalion was the equivalent of a Cavalry or Yeomanry Regiment, the distinction at this time being primarily a matter of equipment. These battalions used a slightly different Company, "Squadron" being a cavalry term, than the mechanized horsemen of the Light Brigade. Instead of 18 tanks, the Heavy Company maintained one Half-Company of 7 Light Cruisers and another of 5 Heavy Cruisers. As with the Light Brigade, the Light Cruiser tanks were more often than not Mk. VI Light Tanks. With a further 3 tanks at the Company Headquarters, the Heavy Company had a total strength of 15 tanks.

With both armoured brigades organized on an "all tank" basis, the supporting arms of the division were formed into a third formation, called oddly enough, the Support Group. This Group was to act as a pivot of maneuver for the armoured brigades - using its infantry and artillery to form a base of operations, or to hold the ground captured by the tanks. The infantry element consisted of 2 "Motor Battalions" - 1200 fully motorized infantry transported in 15cwt trucks and armoured carriers. Providing long range fire support was a regiment of the Royal Horse Artillery with sixteen 25-pdr. field guns. There was also a mixed regiment of anti-tank and light anti-aircraft guns (24 of each), and the Group was completed with a detachment of the Royal Engineers.

In direct support of the three combat elements were the units of Divisional Headquarters. Here were attached the various service troops, including four Motor Transport Companies of the R.A.S.C., two Field Ambulances of the Medical Corps, and a Field Hygiene Section.

This 1939 organization was short lived however. The defects of the system began to show under the stress of wartime and the shortage of tanks. Limited numbers of trained personnel and the hurried mechanization of the Cavalry Regiments forced revision of the division's structure. In April of 1940, the armoured divisions were officially reorganized, having "homogeneous" armoured regiments in place of the units equipped with several different types of tanks (30/RAC/44 Sd.7 of 14 April 1940). Additionally, the Engineer Detachment was removed from the Support Group and placed under Divisional Headquarters.

The only unit to use the above organization in combat (actually a composite of the 1939 and the 1940 organizations) was the 1st Armoured Division, in its campaign in France in May 1940. Even this unit, though, was not able to reach the ambitious strength levels called for by the War Establishment. There was no RHA Regiment, no Motor Battalions, no 40mm AA guns, and only 5 of the 6 tank regiments, equipped with a variety of cruiser and light tanks.



* = inclusion of REME Light Aid Detachment in organization.

The Armoury
727 W. JOHNSON STREET RALEIGH, N. C.

MILITARY HOBBY SPECIALIST
AIRCRAFT . ARMOR . SHIPS
FIGURES . BOOKS . DECALS
HOURS 7-10 P. M. TUES.-THURS.-SAT.
MAIL - 2807 WAYLAND DR., RALEIGH, N. C. 27608
HOME PHONE (919) 787-9373

SUPPLIES FOR LEISURE TIME HOBBIES AND CRAFTS
Space Age
HOBBY
CENTER
JIM ANDERSON
Telephone 375-4351
2701 David Avenue
Pacific Grove, California 93950

AIRCRAFT • SHIPS • ARMOR
• MINIATURE FIGURES (ALL PERIODS)
• MAGAZINES
• DECALS
• BOOKS
Brookhurst Hobby's
12741 BROOKHURST WAY
GARDEN GROVE, CA. 92640 (714) 539-4121
Jack & Connie Anderson CO-OWNERS *Dick & Donna Harrold*

THE
HOBBY BENCH
. . . for the Hobbyist
BOB SCHINDLER
213/963-3711
350 West Foothill Blvd.
Glendora, California

LARGEST SELECTION
ARTS, CRAFTS, HOBBIES, TRAINS, SCIENCES
HOBBI-ART inc.
"YOUR FAMILY HOBBY CENTER"
MIDWAY SHOPPING CENTER
4713 KIRKWOOD HIGHWAY
WILMINGTON, DEL. 19808
(302) 994-0281

HOBBY HOUSE
DECATUR SPEEDWAY
130 EAST PONCE DE LEON AVE.
DECATUR, GA. 30030
"ON THE SQUARE"
378-2253
DIV. OF MORRISON TOY & HOBBY SHOP

The M-24 Chaffee (Continued from Page 16)

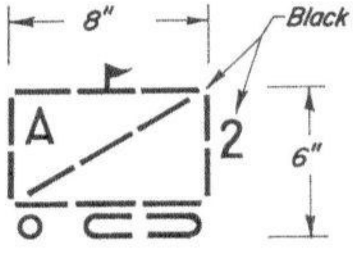
built a total of 295 of the M-19 twin 40mm Anti-aircraft Gun Motor Carriage, which was based on the M-24 chassis. It had always been considered a waste to use the medium tank chassis as a carriage for the 105mm howitzer. So, the "Chaffee" was used as the basis for the M-37 Howitzer Motor Carriage, which replaced the M-7 "Priest". The largest weapon to be mounted on the M-24 chassis was the 155mm howitzer. This vehicle was designated as the 155mm Howitzer Motor Carriage M-41, and was unofficially known as the "Gorilla".

The first M-24's started arriving in Europe in late 1944, and these were used to supplement the M-5A1's in Light Tank Companies. At first, the M-24 was nicknamed the "Panther Pup" because of some vague resemblance to some German tank. At least two of these tanks took part in the fighting in the Ardennes (see AFV-G2, Vol. 2, No. 9). Those "Chaffee's" that took part in the remaining fighting in the ETO were considered very successful, and they were particularily well liked by the former M-5 crews that converted to them. The M-24 remained in service with the US Army until the Korean War, when it was succeeded by the M-41 Light Tank. To this day, the M-24 Light Tank remains in service in numerous countries, where it is considered an excellent reconnaissance vehicle.

Color 'n Camouflage (Continued from Page 25)

infantrymen were sighted, moving through the snow and along the road, dressed in white snow camouflage suits. As the Soviet troops struggled through the deep snow, the Waffen-SS unit waited for the company commander's orders to open-fire. With a roar, the 2. Kompanie opened-up, with all available automatic weapons. Arcing red tracers from the 2cm cannons flickered among the struggling Russian soldiers, and light machine gun bullets splashed-up snow, as the Soviet attack columns were repulsed by the heavy and accurate fire. Firing continuously until the barrels glowed dull red in the fading light, the 2. Kompanie of SS-Pz. Aufkl. Abt. 11 was instrumental in slowing and hindering the Russian Winter Offensive.

Following this successful fight, the Waffen-SS unit withdrew to the area of Alt-Bor, where they established a defensive line, together with aged Wehrmacht troops of several Construction (Bau-Bataillonen) units. Shoulder-to-shoulder, this mixed defense held up the Russian attacks for four more critical days, giving other German forces time to withdraw and regroup. At the end of their successful defense, the battered Sd. Kfz. 250/9 light armored halftracks of the 2. Kompanie of SS-Panzer-Aufklärungs-Abteilung 11 were ordered to withdraw into the new fortified defensive positions in front of the city of Narwa. With their valiant struggle, the Waffen-SS unit had been a high-point of the retreat.



Tactical Marking - 2nd Company (Halftrack) of a Panzer-Aufklärungs-Abteilung

Product Review: Airfix 1:76th Scale Panzer IV. Kit

by Lonnie Gill

Hail the end of rot-a-track! This epoch shaking development is the most noticeable feature of Airfix's latest offering, the German Panzerkampfwagen IV. tank. With the new vinyl track (which includes far more detail), watching the tracks reduce the running gear of your 1:76th AFV to a melted mess will no longer be inevitable. Airfix has done us a real service.

The Panzer IV. has been one of the wanted and needed kits in 1:76 scale; it promises to be quickly sold out. When you open the box, its easy to see that the kit has been worth the wait. Detail is excellent by Airfix standards; and, when properly finished, the kit compares favorably with larger scale versions. The suspension is well done and complete, even if tedious to put together. Careful work here will be amply rewarded.

One has a choice of assembling either the Ausführung F1 (with the 7.5cm L/23 gun) or the F2 (with the 7.5cm L/43 gun and single baffle muzzle brake). In addition, the kit has been designed so that it can be converted into many varients with a little patience. The hull floor, sides, one piece track guards and front glacis plate make a strong unit which can be used as the basis for conversions. The hull top is completely separate and features pieces for the sides of the engine and driver's compartments. Separate hatches, vision ports and exhaust offer many detailing possibilities. Extra storage to enhance realism is amply provided with spare track (plastic), and spare road wheels complete with their rack, and even a "jerry" can that's better than Armtecs.

The turret also offers many possibilities for detailing. In addition to separate mantlets for the alternate guns, the side hatches can be modeled in the open position, overcoming a fault of the Monogram kit. Use the 7.5cm breach block from the Airfix Sturmgeschütz III. for extra detail in the turret interior. Destined to make mistakes in turrets, Airfix scores again! There's a bulge to the rear of the turret cupola that's wrong. While the cupola does seem to overhang when seen from above, a side view shows this to be an illusion. Therefore, file off the bulge, and move the cupola forward until it is flush with the rear of the turret. Make sure that a vision slit in the cupola still faces forward. The cover for the turret storage box then needs to be filled in. With some plasticard and an L/48 barrel, an Ausführung G can be made, and the more ambitious can make a Sturmgeschütz IV. using the hull top from the Sturmgeschütz III. kit, as the Germans did. The possibilities are limited only by your skill. The newest Airfix kit will probably be hard to find for awhile, but it is well worth the extra wait.

Product Review: Instant Rivet

by Jim Garrison

A new product for those who have searched through their town for 'insect pins' and then found that they were too large for rivets in the scale used. Instant Rivet comes in the form of rods of memory plastic. Heat in the form of a cigarette or other convenient form is brought close to one end of the rod and zappo! A rivet head is formed.

The best method is to first drill holes in the places where you want the rivets. These drilled holes should be slightly smaller than the desired rivet size. Insert a piece of the Instant Rivet rod into the hole and use a small amount of glue on the inside to hold the rod in place. Finally, the rivet head is formed by heat radiated from your source; a light bulb is hot enough for this purpose. The rivet head that is formed is realistic, right in size down to the tine space between the edge of the rivet head and the armor surface.

The Instant Rivet packet contains three different size rods: Blue (0.3mm), Yellow (0.4mm) and Green (0.5mm). The rods are in 2-1/2 inch length and there is about 8 feet of material in each packet. This product may be obtained via first class mail in the U.S. and Canada, by sending one dollar ($1.00) to: Instant Rivet, P.O. Box 5815, Las Vegas, Nevada 89102.

Manufacturers or Retailers wishing to have a product reviewed in our Product Review section should contact Baron Publishing Company, P.O. Box 293, La Puente, CA 91747, sending a sample of the product and any pertinent details or photographs.

PHONE (212) 833-6111

Walt's Hobby Shop
MODELS TRAINS CRAFTS
AURORA MODEL MOTORING

WALTER STEINER
8321 FIFTH AVE.
BROOKLYN, N. Y. 11209

PLANES • TRAINS • CARS • BOATS
ENGINES • PAINTS • ACCESSORIES
CRAFTS • MINIATURES

HOBBY KORNER
HOBBY AND CRAFT HEADQUARTERS

ZIP 87107
344-3267
HANK
6693 FOURTH ST., N.W.
ALBUQUERQUE, N.M.
SUE
MGR. BOB

MASTER CHARGE
BANKAMERICARD
"YOU NEED A HOBBY"

HARPER'S HOBBY SHOP
PLANES, TRAINS, BOATS, CARS
LIONEL - UNIMAT
CUSTOM MODEL PAINTING

6568 MAGNOLIA AVE.
RIVERSIDE, CAL. 92506
TEL. 683-5865
DAILY 9-6
MON. & FRIDAY 9-9
JAMES L. HARPER

JACK ASHER
ARNOLD CHRISTENSEN

WESTGATE BIKE & HOBBY SHOP
SCHWINN SALES & SERVICE
MODEL TRAINS & PLANES
ART & CRAFT SUPPLIES, PICTURE FRAMING, GAMES

4019-29 W. CHARLESTON BLVD.
LAS VEGAS, NEVADA 89102
878-7831

MODELS CERAMICS INDIAN CRAFT

Massie's
Hobby House

9224 E. LAS TUNAS, TEMPLE CITY, CALIF. 91780

AT 5-3896

WOODWORK MODEL ROCKETS BOATS

ROAD RACING
TRAINS - PLANES
HOBBIES COMPLETE

Earle's Hobby & Camera Center
17439 SO. BELLFLOWER BLVD.
BELLFLOWER, CALIF.
Hobbies - Arts - Crafts

CUSTOM MOSAICS
RESINS
PHONE 866-9114

SCALE CRAFT
MODEL IMPORTS
P.O. Box A
Federal Way
Wash. 98002

BILL OSBORN VE9-7091
JOHN GREER VE9-9347

Member - ACAA, AAA, EAA
AAHS, CAHS, C&C, IPMS
We Purchase
Photos & Negatives

AVIATION BOOKMOBILE
MIL - AIR PHOTOS & BOOKS
New, Used & Out-of-Print Books & Magazines
Aviation Jewelry, Photos & Color Slides

Harry & David Miller
(213) 863-5028
11809 S. Alburtis Ave.
Norwalk, Ca. 90650
Hangar Q-5 - Compton Airport, Compton, Ca. 90200

B. F. MICHALEWSKI
SIG BALSA DISTRIBUTOR
WHOLESALE

Mike's MODEL SHOP
Selected Model and Craft Supplies

Bus. 444-8297
Res. 444-5407
229 E. Main
El Cajon, California

CATERING EXCLUSIVELY TO THE
HOBBYIST, ARTIST, & HANDCRAFTER

Alexandria Arts & Crafts

807-809 CAMERON STREET
ALEXANDRIA VIRGINIA 22314

R. D. SLATER 836-7707

HAL POLLENZ
ASST. BUYER
516 IVanhoe 3-6338

HOBBY MASTERS
AIRCRAFT, ARMOUR, MILITARY
MINIATURES - BOOKS & PERIODICALS
PLASTIC SCALE MODELS
PAINTS, DECALS & ACCESSORIES

MAJOR B. G. AMES
MANAGER
220 FULTON AVENUE
HEMPSTEAD, N. Y. 11550
MON. & FRI. 9:00 TO 9:00
TUES., WED., THURS., SAT. 9:00 TO 6:00 P.M.

PHONE: 733-5879

BONNIE BRAE HOBBY SHOP
M'A'RKLIN - JOUEF - FLEISCHMANN - ARNOLD
RAPIDO - MINITRIX - MILITARY MINIATURES
AIRPLANES - CARS - CHEMICALS
HOURS: MON.-FRI. 9 A.M. - 8 P.M.
SAT. 9 A.M. - 5 P.M.
SUN. 11 A.M. - 4 P.M.

731 SO. UNIVERSITY BLVD.
DENVER, COLO. 80209

Blunted Sword (Continued from Page 22)

to their rear slammed Israeli Centurions. The 2nd Tank Battalion stuck to it's guns and fierce fighting took place, lasting until 1800 hrs. Among the Israeli citations for valour announced at the end of the war was one to a Lt. Giora Weiss, who commanded an AMX platoon.[4] According to the citation, Weiss, exposed in his turret, knocked-out a "Patton" at a range of 10 yards, and then proceeded to knock-out six other "Pattons".

At the same time that the battle for Nablus was taking place, that part of the 2nd Tank Bn. at Silat Edh Dhahr was at first tied down and then overrun by the other Israeli brigade moving south from the vicinity of the Araba junction.

With the fall of Nablus, the West Bank area of Jordan fell to the arms of Israel. Jordanian tankers had fought well, even though outnumbered and hampered by poor intelligence and communications.

Footnotes - Part II.

1. The Six Day War, Description of Combats by Commanders, Northern Front, Israel Defense Forces, Spokesman's Office, August 1967, and A History of the Six Day War, by Arye Hasharia, Ledory Publishing House, Tel Aviv, no date. These volumes are the source of most of the information in this article.
2. Hussein of Jordan, My "War" with Israel, by Vick Vance and Pierre Lauer William Morrow & Company Inc., New York, 1969, pp. 90
3. "Firepower in Sinai", Leo Heimann, in Ordnance, Nov.-Dec. 1968, Vol. LIII., No. 291, pp. 276
4. Israel Defense Forces - The Six Day War, Mordechai Bar On, editor, Chilton Book Company, Philadelphia, 1968, pp. 239

Product Review: Bandai 1:30th Scale 'Grasshopper' by William Rupprecht

This new and latest kit from the Japanese firm of Bandai is of one of the most unique vehicles produced by the Germans during World War II. The 'Grasshopper' (or Heuschrecke) was a multi-purpose vehicle capable of recovering disabled armor, removing its turret for use as a pillbox, and performing as a mobile artillery piece. The full designation of the tank was: 'Heuschrecke' 10.5cm leichte F. H. 18/6 auf Gw. IV. Designed by Krupp, only eight of the 'Grasshoppers' were manufactured. Although produced in very small numbers, the vehicle showed the extreme versatility of the Panzer IV. chassis and supplemental components found on the superstructure.

Molded in textured sand-colored plastic, in 1:30th scale, the kit of the 'Grasshopper' has the lifting apparatus, platforms, plates and major pulleys of the full scale prototype. The turret and its 10.5cm field piece are very realistic, and are shaped accurately. One bad point of the kit is the absense of the many chains, gears and hooks of the lifting apparatus, however, these can be built-up and added-on from parts in the trusty scrapbox. Another interesting feature of the kit is that the lifting apparatus and turret are moveable so that the many positions the vehicle assumed can be duplicated.

The kit's suspension is very good, with little flash around the road wheels. The track is the best that I have seen to date. The links are in plastic and not rubber, as in previous kits coming from Japan. In order to make the chassis as true and accurate as possible, the front drive sprocket must be modified to the correct shape. A good photograph is available on pp. 157 of German Tank and Antitank (from WE Inc.) which can be used for the changes necessary.

To duplicate the correct color of the vehicle, I would suggest a Wehrmacht sand-tan primer paint be used. The correct shade can be found in a previous issue of AFV-G2. The decals from the kit can be used in conjunction with other transfers. The kit's decals, however, must be de-glossed by rubbing with the tip of a pencil eraser. Actually, after the de-glossing, the decals are quite good. This vehicle is a very worthwhile investment to augment the armor enthusiast's stable of the AFVs produced by Nazi Germany during the Second World War.

MILITARIA
The Military
Collector's Magazine

A Bimonthly magazine devoted to Data, and the Study of Military Artifacts.
Subscriptions - $ 4.25 per year.
For a Sample Copy, send 75 cents to -
D.O. Enterprises
Post Office Box 6384
Los Angeles, Calif. 90055

lost again?

MAYBE YOU NEED... THE WARGAMER

It's the bimonthly magazine created especially for the growing army of wargamers all over the world. Every other month, THE WARGAMER brings readers articles on tactics, organization, rules and hints to help armchair generals get more out of their miniature tabletop battles.

It doesn't matter whether your little armies fight with spears or panzers, THE WARGAMER covers all eras of history from Ancient Rome to Napoleonic Europe to World War II. It's got everything for everyone who has ever led a miniature cavalry charge or infantry assault.

THE WARGAMER
2717 Elnora Street
Wheaton, Maryland 20902

subscriptions:
$3 Per Year $5 Two Years

The International Wargamer

FOR ALL WARGAMERS ! !
- MINIATURES
- BOARD GAMES
- ANCIENT
- NAPOLEONIC
- ARMOR

INTERNATIONAL FEDERATION OF WARGAMING
ifw

A monthly photo-offset magazine, published by the IFW.

Write to —
International Federation of Wargaming
1806 Richmond St., Chicago, Ill.
60647

MOVIE WORLD

6900 ORANGETHORPE AVENUE
BUENA PARK, CALIFORNIA

East
Phone (313) 543-0005

West
(313) 255-7110

THE SQUADRON SHOP
IMPORTED PLASTIC MODELS

East
23500 JOHN R
HAZEL PARK, MICH. 48030

West
22146 W. SEVEN MILE
DETROIT, MICH.

CONTINENTAL
HOBBIES, INC.

25 BROAD STREET
FREEHOLD, N.J. 07728

Largest Selection of AFV Models List 25¢

VICTORY HOBBY SHOP
1411 WEST WHITTIER BOULEVARD
MONTEBELLO, CALIF. 90640
TELEPHONE: 721-1590

PHONE MADISON 6-3339
ESTABLISHED 1887

NATICK STORE
EVERYTHING FOR THE STAMP COLLECTOR
A.P.S. 7915 & 44784
DOWNTOWN HOBBY SHOP

209-211 W. 4TH ST. LOS ANGELES, CALIF. 90013
JOHN W. MERCER
BOB CHISHOLM
MAUDE C. MERCER
GEORGE TOLZMANN

ARCHER'S
HOBBY WORLD
1852 NORTH TUSTIN
ORANGE, CALIF.
(714) 998-1272

AFV Models

in 1:150 scale

Perfect for use with "N" Gauge buildings and scenery. For realistic numbers these scale models, assembled from cardstock, are ideal for wargaming.

MODELS INCLUDE:

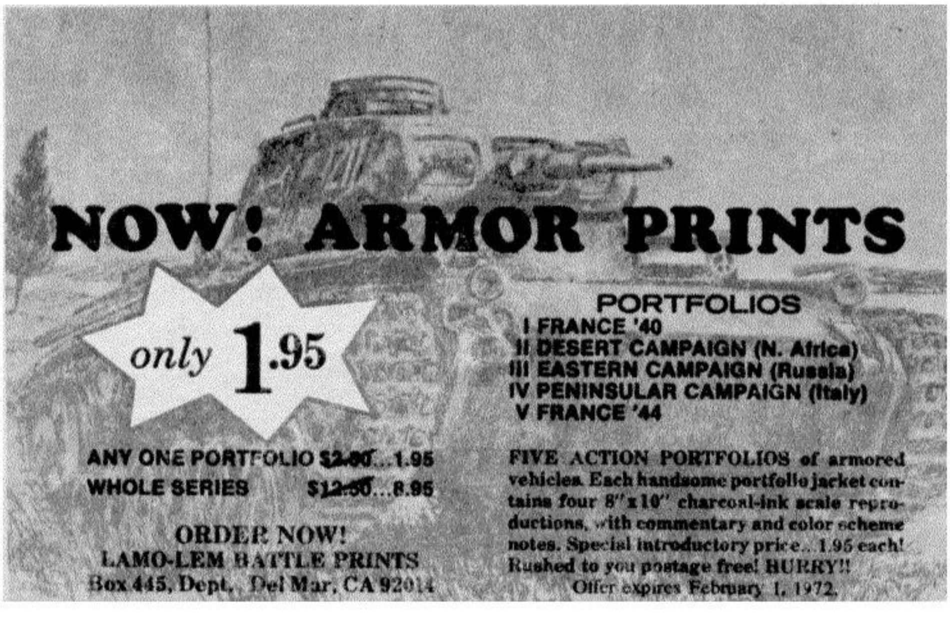
Pz IV and SdKfz 251 (early)
Panther and SdKfz 251 (late)
StuG III and SdKfz 250 (late)
Cromwell and Humber Scout Car
M-5 Stuart and M-3 Half-track

INTRODUCTORY OFFER (special two card pack)
Tiger and Hetzer
Sherman V and Universal Carrier
plus full literature

send $1.00 for Airmail to:

ALL CARDS AVAILABLE IN SEPARATE QUANTITY PACKS.

Greening, Knoll Cottage, Knoll Road, Dorking, Surrey, Eng.



NOW! ARMOR PRINTS

only 1.95

PORTFOLIOS
I FRANCE '40
II DESERT CAMPAIGN (N. Africa)
III EASTERN CAMPAIGN (Russia)
IV PENINSULAR CAMPAIGN (Italy)
V FRANCE '44

ANY ONE PORTFOLIO ~~$2.00~~...1.95
WHOLE SERIES ~~$12.50~~...8.95

ORDER NOW!
LAMO-LEM BATTLE PRINTS
Box 445, Dept. Del Mar, CA 92014

FIVE ACTION PORTFOLIOS of armored vehicles. Each handsome portfolio jacket contains four 8"x10" charcoal-ink scale reproductions, with commentary and color scheme notes. Special introductory price.. 1.95 each! Rushed to you postage free! HURRY!!

Offer expires February 1, 1972.